

# AMATEUR RADIO AMATEUR RADIO AMATEUR RADIO AMATEUR RADIO

AUGUST, 1957

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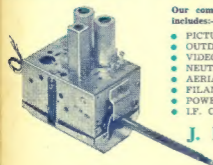


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2442.5 Kc.	5653.333 Kc.	6300 Kc.	6900 Kc.	7225 Kc.
2443 Kc.	5700 Kc.	6325 Kc.	6925 Kc.	7250 Kc.
2732 Kc.	5722.222 Kc.	6350 Kc.	6950 Kc.	7275 Kc.
2760 Kc.	5725 Kc.	6375 Kc.	6975 Kc.	7300 Kc.
2979 Kc.	5744 Kc.	6400 Kc.	7000 Kc.	7325 Kc.
2990 Kc.	5750 Kc.	6425 Kc.	7002.5 Kc.	7350 Kc.
3380 Kc.	5775 Kc.	6450 Kc.	7003 Kc.	7375 Kc.
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3537 Kc.	5875 Kc.	6525 Kc.	7012 Kc.	7475 Kc.
3892 Kc.	5900 Kc.	6525 Kc.	7018 Kc.	7500 Kc.
3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
4445 Kc.	6050 Kc.	6625 Kc.	7075 Kc.	7650 Kc.
4445 Kc.	6075 Kc.	6650 Kc.	7100 Kc.	7675 Kc.
4609 Kc.	6083.3 Kc.	6675 Kc.	7125 Kc.	7700 Kc.
4815 Kc.	6100 Kc.	6700 Kc.	7145 Kc.	7725 Kc.
4930 Kc.	6125 Kc.	6725 Kc.	7150 Kc.	7750 Kc.
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# AMATEUR RADIO

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## EDITORIAL



## LEST WE FORGET

With August once more upon us, our thoughts turn to Contests and especially the Remembrance Day Contest, for it was on the 15th day of this month twelve years ago that peace once more returned to a war-weary world, inevitably leaving in its wake a trail of bereaved. Amateur Radio and its many exponents was no exception. We were proud to have provided the fighting Services and the Merchant Marine with many operators who at the outset of hostilities provided a pool of experienced and readily available personnel to draw upon whilst new adherents were being trained to play their worthy part.

It was to hand down to posterity their unselfish sacrifice and for the part they played that the first contest to be known as the Remembrance Day Contest was inaugurated in 1947. This coming event therefore will be the tenth anniversary of this popular test in skill and endurance between States. The last few years have seen a marked increase in this Contest's popularity with newcomers and oldtimers, active and (usually) non-active Amateurs alike. It is not unusual perhaps then that the original concept of this contest has been largely

forgotten in the tear and rush of exchanging serials and of pitting one's skill and operating ability against the next comer.

A very worthy and commendable suggestion—to bring home to all participants the original nature and concept of this Contest—will most likely be incorporated in the event for 1958, but for this year we enjoin you to enter and enjoy yourselves at the same time sparing a thought for the real reason for the Contest. The Rules of the Contest have been modified over the years to endeavour to provide every entrant with an interest in his final State score, to obtain as many entries from within a State as possible, to encourage the use of all Amateur bands, and to keep the Rules simple and the results easy to check.

Your Division requires your entry to assist in its final points, so dust off the rig, warm up the receiver, stoke up the transmitter and get cracking—but before zero hour arrives, spare a thought for those to whom this Contest is dedicated and let your operating be based on the concepts of gentlemanly conduct and unselfishness which inspired THOSE YOU REMEMBER.

FEDERAL EXECUTIVE.

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# A 100 Watt D.S.B. Mobile Transmitter

BY JACK NAJORK, W2HNI

WHEN John Costas, W2CRR, came up with his double sideband suppressed carrier transmitter ("CQ," Jan. '57, and "A.R." July '57) we looked over the pros and cons and came to the unbelievable conclusion that here, at last, was the closest approach yet to something for nothing. For the mobile operator fighting QRM and low efficiency antennae, this mode of emission has, in general, all the advantages of s.s.b. but is actually simpler to build and operate than an s.s.b. transmitter of equivalent power. Here are the advantages as compared to an a.m. rig in the same power class:

1. More "talk power."
2. Easier and less expensive to construct.
3. Lower average d.c. input power required.
4. No critical or specialised components needed.
5. Instant change to straight a.m. if desired.

The drawback of the system, if it can be interpreted as such, is that you will now be talking to the s.s.b. men and must therefore be equipped to receive them. Lacking a b.f.o., this can easily be done by using the transmitter v.f.o. for carrier insertion, as will be explained later.

The basic difference between a high level d.s.b. transmitter and a conventional a.m. rig is in the final amplifier and the method of modulating it. Existing exciters and/or drivers can be used together with conventional speech equipment. This was one of the reasons for using a surplus Command transmitter as the heart of the mobile rig to be described. The other reason is that the oscillator circuit in the Command transmitter, when suitably isolated, takes a back seat to none in terms of stability. As in s.s.b., this feature is essential if the station at the other end is going to decipher your carrier-less sidebands.

## CIRCUIT DETAILS

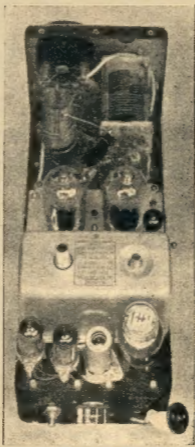
The Command transmitter we used originally tuned 4.0 to 5.3 Mc. and this range can easily be padded down to cover the 75 metre phone band (as well as the c.w. band if desired) by adroit manipulation of the oscillator coil slug and padder capacitor. Using this range Command rig has the added advantage of a higher "C" oscillator tank than would be the case if the 3.0 to 4.0 Mc. transmitter is used. This means better oscillator stability.

The original 1626 oscillator is followed by a 6AK6 buffer. It should be emphasised that some form of isolation between the oscillator and final is essential—otherwise the final will pull the oscillator frequency and you will have a novel system of f.m. plus double sideband less carrier, which will not endear you to the fellow at the other end. Since ours was a 12 volt system, the 6AK6 heater is wired in series with the front panel No. 47 pilot lamp thereby conserving 0.945 watts of d.c. power.

• Last month an article on the theoretical approach to double sideband was reprinted from "CQ." From the same magazine herewith is printed a practical article on the same subject. Although it is referred to as a 100 watt d.s.b. mobile transmitter, it can quite easily become the basis of a home station transmitter. —Ed. "A.R."

(You think like this after years of mobiling.)

The 6AK6 develops its drive across a low "Q" slug-tuned coil. A look at the schematic will show you how to get away from the nasty chore of centre



tapping this coil while still ending up with push-pull drive to the final grids. The small mica trimmer at the lower end of the coil compensates for the 6AK6 capacity across the top side of this coil so you will end up with equal grid drive to each final tube. If you want to be different, you can drive the grids in parallel and operate the plates

in push-pull and come out with the same results. In case you hadn't recognised it, this final is nothing more than our old friend, the push-push doubler—except that in this application it is operated straight through. The result is carrier cancellation.

Separate grid RFCs and grid resistors are needed with this arrangement, but this is desirable because we want to be able to look at the grid current for each final tube in initial tune-up. This scheme of push-pull input can be considered self-balancing and should therefore give us better carrier cancellation, although this is apparently not a problem. At any rate, none of the stations worked to date has been able to find the carrier so it must be pretty well buried.

The final tubes are 12DQ6 t.v. sweep output bottles—big brother to the 12BQ6. Both these types have high pervasance—that is, you can make them pull their load of plate current with comparatively low plate voltage. A second very desirable characteristic of this family of tubes is that the screen power requirements are relatively low. This means that the audio modulating power required for a given peak power output is correspondingly lower. Although the original 1626 tubes can be used, their higher screen power requirements may result in somewhat less peak power unless the audio section is beefed up. Although either the 12BQ6 or 12DQ6 can be used, we settled for the latter because of the higher plate dissipation rating (18w. versus 11w.) and slightly higher gm.

The final tank is a conventional shunt-fed, single-ended circuit with a tapped, link-coupled antenna coil. Although the popular pi-network can be used, the author prefers the link coupling system for mobile work because the final cannot be loaded unless the antenna is resonant. This is not necessarily true with a pi-network as evidenced by the Hams who unknowingly load a length of co-ax line rather than an antenna.

The original final tuning capacitor is left ganged to the oscillator merely because removing it would wreck the entire dial drive assembly. Although an additional tank capacitor is used in the final, the original capacitor is connected in parallel with this to build a higher "C" tank and also to afford some degree of oscillator-final tracking. If you want to be fancy, you can tailor the final tank coil and added tuning capacitor to achieve perfect tracking across the entire band. Since most of our operation is in the top 50 Kc. of the band perfect tracking was not essential and frequency excursions of this order can be made without retuning the final. (Provided your loaded whip is resonant!)

Now we come to the pay-off on this d.s.b. system; the audio requirement. Or, to put it more concisely, the lack of it. The modulator consists of a 12AU7 miniature dual triode with sections in parallel. (Yes, you can use 12SN7 or 12BH7 with no changes.) This is driven

by a resistance-coupled 12AT7 speech amplifier. The carbon mike input circuit is the familiar grounded-grid method which does away with the need for a mike current supply and mike transformer. Notice one important point in connection with the modulator. We must have push-pull audio output to modulate the screens. (By the same token, don't try to use tubes like 82B, 815, 832, etc., which have a common screen!) As the schematic will show, the screens are effectively at d.c. ground for d.s.b. emission. When audio is applied, one screen is driven positive and this tube will conduct. The second tube's screen, at the same time, is driven negative, so it just sits there and coasts. On the other half of the audio cycle, the second tube works and the first tube rests. In other words, at any given instant, only one final tube is working.

details, it is mentioned now in order to show the reason for inclusion of the d.s.b.-a.m. switch. More elaborate versions of this type of transmitter include a built-in tone generator to supply a steady audio modulating signal so the final can be resonated and loaded. This is not for us mobileers! So, you say, how about a steady whistle into the mike. Fine! But unless your whistler is a lot steadier than ours, you'll never find the plate current dip because small variations in whistle level will vary the plate current too much. The answer is the a.m. d.s.b. switch which provides two nice features.

In the a.m. position you have a conventional rig with carrier and two sidebands. This you can resonate and load in the usual fashion. You can also use this position to talk to other mobileers or die-hards who refuse to insert car-

switch to the other position restores the rig to d.s.b. A few minutes with the schematic will make this clear.

The modulation transformer required in this application is not critical except that it should provide a step-up in impedance between the modulator and final screens. A turns ratio step-up of at least one to two (full primary to full secondary) is needed and a step-up of one to four or one to six is much more desirable. With the lower ratios of transformation, more audio power will be needed for a given peak power output. Our transformer was dug out of the junk box and happened to be an interstage push-pull plates to push-pull grids. This was connected in reverse, with the modulator connected to one half of the grid winding to give a step-up of one to two.

In general, class "B" driver transformers are not suitable because they step down. However, if you can find a class "B" driver with push-pull plates to push-pull grids, you are in business. Connect it in reverse, that is, modulator connected to half the grid winding and screens connected to the plate winding. In our experiments we even tried a small 60 cycle power transformer with modulator connected to the 115v. primary and screens connected to the centre-tapped h.v. secondary. It worked almost as well as the interstage job, too, so do not be afraid to experiment!

### CONSTRUCTION

The original 1926 oscillator circuit is left intact and the output coupling link feeding the 1625 grids is reconnected to the buffer grid. The 6AK6 buffer, 12AT7 speech amplifier and 12AU7 are squeezed into the rear apron space formerly occupied by the crystal socket and indicator tube. The OA2 voltage regulator sits just behind one of the 12DQ6s. No special precautions in construction are required other than the usual one of shielding long audio leads to prevent r.f. and/or audio feedback.

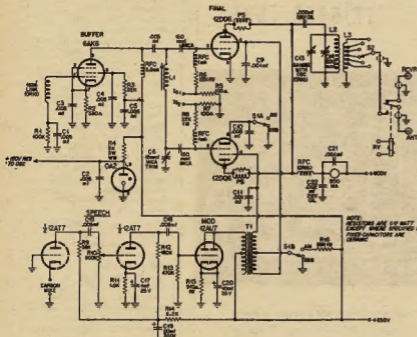
Power is supplied at the rear via a Jones plug while photo connectors are used to antenna connections.

The original oscillator dial can be covered with paper and new calibrations inked in, or, it can be replaced with a disc of thin aluminium suitably marked.

Octal sockets are needed for the 12DQ6s, these being secured to a sheet of aluminium which covers the area formerly occupied by the 1625s. Removal of the final paddler condenser leaves room for the modulation transformer underneath. The original tank coil and antenna roller coil assembly are removed to make room for the meter, antenna coupling switch and final tank tuning capacitor. Naturally, it is not necessary to follow this exact order of construction. Just make your own parts fit the available space. Note also that control circuits are not shown. Your pet ideas are probably better than mine so why complicate the schematic?

### JUNE 1957 CALL BOOK

The new issue of the Australian Radio Amateur Call Book is now available. Make certain you purchase your copy early as only a limited supply has been printed.



Schematic of Transmitter.

- L1-80 turns No. 28 enamel scramble wound on 1/2 inch diam. slug-tuned coil former.
- L2-30 turns No. 18 tinned, 1 inch diam. 3/4 inches long. Air wound with plastic ribs.
- L3-10 turns No. 14 tinned, wound around bottom of L2. Same diameter of wire and cement to L3 with 1/16 inch concentric clearance from L2. Tap every turn.

The idle tube is still hanging in the circuit, however, and its internal capacity acts as a neutralising capacitor for the working tube. Eurekaal! True automatic neutralisation!

Obviously, with no audio applied and with zero screen voltage, application of plate voltage will produce very little plate current flow. With the antenna properly coupled, however, modulation will kick the plate current up to a high value. How, then, does one resonant and load the final of this rig, especially in an automobile?

Although this question would normally be answered later in the tune-up

- S1-D.p.d.t. toggle switch.
- S2-Ten position rotary switch.
- T1-Interstage transformer. Turns step-up at least 1:2, modulator plate to screen. See text.
- FS-5 turns No. 22 tinned wound on 100 ohm 1 watt resistor.
- RY1-12 volt d.c. s.p.d.t. relay.

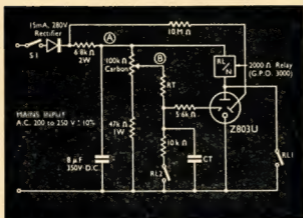
rier for you. Once the rig is tuned up in the a.m. position, flip the switch to d.s.b. and you are tuned and ready to go with lots of talk power. To put it another way, once you tune up properly on a.m., no retuning is necessary when switching to d.s.b.

In the a.m. position, the switch performs two functions. First, the cathode of one of the final tubes is opened. This leaves us with a conventional, single-ended class C amplifier. Second, B+ is applied to the remaining tube's screen through the centre-tap of the modulation transformer. End result: a screen modulated final! Throwing the

# FOR TIMER SIMPLICITY AND ACCURACY

# Z803U

## TRIGGER TUBE



The Z803U trigger tube can be used for a variety of timer, voltage control and general relay applications. It has an extremely stable trigger voltage over a very long operating life and offers the advantages of all Mullard cold cathode tubes — no heater supply requirements, no waiting for "warming-up" and good mechanical strength.

Typical of the applications of the Z803U is the simple interval timer described here which can cover the range between 5 seconds and 10 minutes. It may be operated direct from any a.c. mains supply between 200 and 250 volts. To start a timing sequence the mains supply is switched on (S1). The d.c. voltage at point A will then rise, in about 100 milliseconds, to between 184 and 282 volts, the actual level depending on the value of the local mains voltage. The timer capacitor CT will start to charge up through RT, the timer resistor.

When the voltage on CT reaches the critical trigger voltage of the Z803U the tube will fire, pulling in the relay, partially discharging the 8 microfarad smoothing capacitor, and lowering the voltage at A. The relay will self lock on contact RL1 thus extinguishing the Z803U, and the relay current will then be limited by the 6.8 kΩ series resistor. Contact RL2, which should make after RL1, re-sets the timer capacitor to zero volts.

However, the relay drops out only when S1 is opened. A new sequence can then be started on reclosing S1.

The 100kΩ preset potentiometer allows the timing circuit voltage to be set up so as to compensate both for component tolerances and for the value of the local supply voltage. The pre-firing voltage at point B will be about 170 volts.

The values of RT and CT will be set by the required time interval T', and can be determined from the fact that  $T' = 1.6 RT.CT$ .

RT should be a high stability resistor, while CT must be a capacitor with a small power factor, e.g., a paper or plastic film capacitor. All other components are of  $\pm 10\%$  tolerance.



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M46

# 90° R.F. Phase Shift Networks

BY N. L. SOUTHWELL,\* VK2ZF

## PART ONE

THE most critical sections of phase shift type s.s.b. equipment are the 90° audio and r.f. phase shift networks. The subject of Audio Phase Shift Networks was covered in a previous article in "A.R." (June and July, 1955), and in this article the various types of r.f. networks used will be dealt with.

These networks are simple in structure, they are not wide-band devices like the audio networks, as they have to produce a phase shift of 90° at only one frequency, the carrier frequency at which the s.s.b. signal is generated in the case of an exciter, or, the frequency at which detection takes place in the case of an s.s.b. receiving adaptor. The networks discussed can be used either in transmitter exciters or receiving adaptors.

The function of the r.f. phase shift network is to produce two voltages, equal in amplitude, but 90° apart in phase. Any discrepancy between the amplitudes of the two voltages, which we will call the two outputs, or a deviation from the 90° phase difference between them, results in a reduction of the sideband rejection, or suppression, and therefore, a reduction in performance of the associated equipment.

Amplitude variation between the two outputs affect the sideband suppression, in accordance with the formula:

$$\text{Sideband Suppression} = 20 \log \left( \frac{200 + E}{E} \right)$$

where E is the difference between the two output voltages, given as a percentage.

Thus a voltage difference of—

- 1.0% results in 46 db. suppression.
- 2.0% " " 40 db. "
- 4.0% " " 34 db. "

The above figures assume that the phase shift produced by the unit is perfect. Phase shift variations from 90° between the two outputs also affects the sideband suppression, and is calculated from the formula:

$$\text{Sideband Suppression} = \tan \left( \frac{A}{2} \right)$$

where A = the number of degrees that the phase shift between the two network outputs departs from 90°.

Thus an error of—

- 1.0% produces 40 db. s.b. suppression.
- 2.0% " " 35 db. "
- 3.5% " " 30 db. "

These figures assume that the voltage balance of the two outputs is perfect.

Errors from both sources may be present at any time, so the r.f. p.s.n. (phase shift network) should be adjusted as carefully as possible to the required conditions.

Phase shift s.s.b. exciters fall into two general types: (1) Those that generate the s.s.b. signal at some fixed frequency outside the Amateur bands (usually 3 or 9 Mc.), and then use the heterodyning principle to obtain a signal within an Amateur band; (2) Exciters that generate the s.s.b. energy directly at the transmitter operating frequency.

\* 20 Dutton Street, Yagoona, N.S.W.

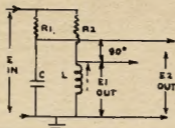


Fig. 1.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_C = X_L = R_1 = R_2$$

$$\text{and the input } Z = R_1 \text{ or } R_2$$

$$C \text{ in pF.} = \frac{10^9}{2 \pi F R}$$

$$L \text{ in } \mu\text{H.} = \frac{R}{2 \pi F}$$

where R is in ohms, and F is in Mc.

F. Mc.	R1, R2 Ohms	C pF.	L μH.
3.6	300	147	13.33
3.6	200	221	8.88
7.1	300	73	6.74
7.1	200	112	4.45
14.2	300	35	3.37
14.2	50	224	0.56
21.2	100	75	0.74
21.2	50	150	0.37
28.4	100	56	0.58
28.4	50	112	0.28
28.4	25	224	0.14

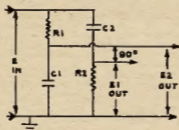


Fig. 2.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_{C1} = X_{C2} = R_1 = R_2$$

and the input  $Z = \frac{1}{2} (R_1 + X_C)$   
Refer to Table with Fig. 1 for values of components.

### RECEIVING ADAPTORS

Phase shift receiving adaptors all operate at a low frequency, normally that of the i.f. channel of the main receiver to which they are attached.

The first type of exciter requires only one r.f. p.s.n., the second type requires an r.f. p.s.n. for each band (where operation is desired); this can produce quite a headache, as will be explained later, on some of the higher frequency bands. Also, with the latter type of

exciter, another matter has to be taken into consideration. This is that each Amateur band occupies a slice of the frequency spectrum, and an r.f. p.s.n. when adjusted for optimum performance at any one frequency, will have a poorer performance if required to operate on a frequency somewhat removed from that channel. This effect is worst on the 3.5 Mc. band, which is the widest band percentage-wise in Australia, i.e. the band runs from 3.5 to 3.8 Mc.; if the r.f. p.s.n. is adjusted to the centre band frequency of 3.65 Mc., a variation of  $\pm 150$  Kc. would be required to cover the whole band. This, as a percentage, works out to be  $\pm 4.1\%$  of 3.65 Mc.

Frequency changes affect some networks only as far as voltage balance of the outputs is concerned, the two-branch network in Fig. 1 is one such. The voltage unbalance in percentage in this network is equal to the percentage difference between the alignment frequency and the operating frequency. Other networks have both the amplitude balance and the phase shift difference between the outputs affected, the pi network in Fig. 5 is one such. However, on most bands s.s.b. stations operate around some particular part of the band and this minimises frequency shifting.

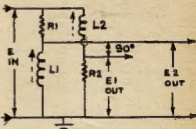


Fig. 3.—"Two-Branch" Type of Phase Shift Network.

At operating frequency F:

$$X_{L1} = X_{L2} = R_1 = R_2$$

and the input  $Z = \frac{1}{2} (R_1 + X_L)$   
Refer to Table with Fig. 1 for values of components.

The impedance of the r.f. p.s.n.'s. used on the Amateur bands range from around 300 ohms down to 50 ohms or lower, the impedance being lowered as the operating frequency is raised, to minimise the effects of stray inductance and capacity of the associated circuitry on the network performance.

Careful consideration should be given to the power level at which the r.f. p.s.n. should be operated.

It must be borne in mind that the outputs from the network provide the driving voltages at their operating frequency to the balanced modulators. Too little voltage restricts the audio input that the balanced modulators can handle before overloading, and consequently restricts the sideband output; too much voltage brings other troubles.

Firstly, almost all networks use resistors, and these components must be non-inductive and so are usually carbon. Should these resistors become heated, due to operation at too high a power level, or for any other reason, they change value, the change is usually permanent, generally the resistor increases in value by anything up to 20%.

The degree of permanence of the balance and phase shift adjustments of any network is no better than the stability of its components, hence changes in the magnitude of any component cannot be tolerated.

In s.a.b. exciters it is common practice to use 5w. or 10w. resistors in the r.f. p.s.n.'s, made up either of single units or 1w. resistors of suitable value in parallel.

Secondly, the greater the power at which the network operates, the greater will be the difficulty in minimising the carrier leakage, both through the balanced modulators, which can be controlled to a certain extent by the carrier null controls, and around the balanced modulators by stray coupling. This latter can only be minimised by shielding and filtering and can be a nuisance.

Between the two extremes lies the optimum operating power level, a little time spent in determining it will pay good dividends and result in a minimum of residual carrier on the transmission, whilst still retaining efficient operation.

In the case of receiving adaptors, the power level of the network should be kept as high as possible, consistent with the ability to minimise the carrier setting through to the audio stages following the balanced modulators. Unwanted carrier voltage on the audio grids can produce distortion and whistles in the output. All adaptors incorporate efficient filter circuits between the balanced mods. and the audio stages, to get rid of the carrier energy. The object in keeping the operating level of the r.f. p.s.n. up, in the case of receiving adaptors, is to provide favourable conditions for exalted carrier tube reception which is desirable in these adaptors.

In regard to diode balanced modulators, whether germanium or vacuum tube, the r.f. voltage at which they operate in s.a.b. exciters, should be such for every volt of audio applied to the balanced mods., ten volts of r.f. should be applied. In s.a.b. receiving adaptors vacuum tube diodes should be used, never germanium, and the ratio of the input voltage from the oscillator to the input signal voltage can be raised, even as high as 100:1.

The output voltage required from r.f. p.s.n.'s used with multi-element tube type balanced modulators cannot be laid down as definitely as it can be in the case of the diodes above, the drive required depending upon the tube type and the operating conditions of the stage.

From the foregoing it can be seen that the r.f. phase shift network used in any piece of equipment is to a certain extent determined by the type of balanced modulator circuit it is required to drive.

For instance, diode balanced modulator circuits dictate that the impedance of the associated r.f. p.s.n. drive

circuits to them be around 50 ohms or lower for satisfactory operation. This applies to either germanium or vacuum tube diodes; incidentally, the most satisfactory vacuum tube diode has been found to be the 6AL5.

Balanced modulators using multi-element tubes are, compared to diodes, relatively non-critical in their driving source impedance requirements, so the designer can normally use an r.f. p.s.n. having a somewhat higher impedance.

R.f. phase shift networks can be classified under one of two headings:

(1) Those using two branches each of which has a phase shift of 45°, one advancing, the other retarding the input voltage, to give the required 90° difference between the two outputs.

(2) Networks that derive the 90° phase shift in one operation and use the input voltage, or portion of it, as one of the two output voltages. Figs. 4, 5, 6, 7 and 8 show circuits of this type of network.

## TWO-BRANCH NETWORKS

The circuit of Fig. 1 is probably the one most commonly used in phase shift exciters, and in the opinion of a number of people, including the writer, one of the most frustrating to try and adjust.  $R1 = R2$ , and on the 3.5 Mc. band the value is usually 300 ohms. The values of C and L are chosen so that at the operating frequency, their reactance equals that of the resistance wired in series with them, i.e.

$$R1 = Xc = 300 \text{ ohms.}$$

$$R2 = XL = 300 \text{ ohms.}$$

The phase shift of each branch of the network will be 45° and can be verified from the formula:

$$\tan \text{Angle} = \frac{X}{R}$$

where angle = phase shift in degrees.

From the above,  $\tan \text{Angle} = \frac{300}{300}$

$$= 1 = \tan 45^\circ.$$

The input impedance of Fig. 1 is resistive and is equal to  $R1$  (or  $R2$ ).

Figs. 2 and 3 are also two-branch networks. Fig. 2, using resistance and capacity, is to be preferred to Fig. 3, using resistance and inductance. The reasons for this are:

- (1) Inductances have a certain amount of distributed capacity.
- (2) The two inductances would have to be positioned so that their fields would not interact.
- (3) Inductance values are not as convenient to adjust as condenser values, nor can they be varied over so wide a range as easily as condensers.

Each branch of the circuits in Figs. 2 and 3 introduces a phase shift of 45°. It will be noted that the relative positions of the resistive and reactive components of these networks differ from those given for Fig. 1, where both inductive and capacitive reactances are used in the one network.

The circuit of Fig. 2 has been very satisfactorily used in several receiving type s.a.b. adaptors, popular amongst American s.a.b. enthusiasts.

The impedance of the network in this application, at a frequency of approximately 450 Kc., was raised to a somewhat higher value than can be used on the Amateur bands, as the effects

of stray capacity and inductance in the associated circuits upon the operation of the r.f. p.s.n. were much less at the lower frequency. The values of components used were  $R1$  and  $R2$ , each 3,300 ohms (1w. 5%);  $C1 = 100 \text{ pF.}$ ,  $C2 = 75 \text{ pF.}$  mica, paralleled by a 50 pF. variable for network adjustment purposes.

The input impedance of these networks, Figs. 2 and 3, is not a pure resistance, and the magnitude of the reactive component can vary over a wide range as the frequency is changed.

## TWIN TUNED NETWORK

Fig. 4 is a network in the second group of r.f. p.s.n.'s, those that produce the 90° phase shift in one operation.

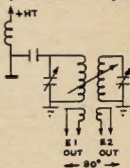


Fig. 4—Twin Tuned Circuit Network.

The two tuned circuits are each capable of being tuned through resonance at the operating frequency. The two coils are mounted so that the coupling between them may be adjusted until a position is reached where they are critically coupled. Generally this means that one coil and its associated link is mounted firmly in one position, whilst the second coil and link, which are of similar size and construction to the first, are mounted on a swivel bracket. The position of this coil is varied during the adjustment of the network and when the correct position is obtained the bracket is locked in position.

The two circuits are adjusted so that one is detuned on the h.f. side of the operating frequency, and the other on the l.f. side, to a point where the voltage delivered from each circuit is 70.7% of that which is obtained when the circuits are tuned to resonance.

Under the foregoing conditions, when the coils are critically coupled, the voltage outputs from the two links are 90° apart in phase and equal in amplitude.

The adjustment of this network (Fig. 4) always takes some time and as can well be imagined a considerable amount of fiddling with it is required in the initial stages. The higher the operating frequency, the trickier it becomes in adjustment. A number of coil positions have to be tried in succession and notes kept on the performance obtained at each position, finally the optimum position is arrived at.

This type of phase shift network is widely used in s.a.b. exciters operating at a fixed frequency of 5 or 9 Mc., and working on the heterodyne principle to obtain signals in the Amateur bands.

The two output circuits being links, have a low impedance, and it is common practice to use this type of r.f. p.n. to feed balanced modulators utilising diodes.

#### PI NETWORK

The network shown in Fig. 5 is a single section l.p. pi filter, terminated in its characteristic impedance.

Pi networks can be used for two purposes:

- Impedance matching,
- Phase shifting.

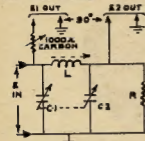


Fig. 5—Pi Type Network.

At operating frequency  $F$ :

$$XC1 = XC2 = XL = R$$

and the

$$\text{Input } Z = R.$$

Refer to Table with Fig. 1 for values of components.

The normal pi couplers and inter-stage tuning circuits used by the Amateur fraternity come under the first category, whilst the circuit in Fig. 5 comes under the second.

It is emphasized now that this circuit, when properly adjusted, is not tuned anywhere near resonance at the operating frequency. It is a single section low pass pi filter, which, when used on the various bands with the constants given, will produce a 90° phase shift at the operating frequency.

When a l.p. pi network is used at a frequency, 0.707 times its designed cut-off frequency, and terminated in its characteristic impedance, a phase shift of 90° occurs between its input and output terminals.

The 1,000 ohm carbon potentiometer in series with the lead to "E1" output (in Fig. 5) is to allow compensation to be made in the "E1" output circuit for any loss that occurs in the filter feeding the "E2" output. It is the amplitude balance control for the network and is initially set at minimum, frequently only a fraction of the resistance available is required, and on occasions the circuit has been operated reasonably satisfactorily without the potentiometer.

The pi filter has one good feature, the stray circuit capacities fall across

the input and output capacities of the filter and can be compensated for by reducing the value of those components by the required amount. This is in direct contrast to the two-branch type of networks, where stray capacitance in the associated circuits results in a degraded performance of the p.s.n.

The pi filter also discriminates against harmonics which can be a handy feature.

A disadvantage of the pi type network is that if operation is undertaken on a frequency differing from the frequency it was adjusted to operate at, both the phase shift and the voltage amplitude balance are affected.

However, this network, once the proper constants have been found, has proved itself to be very easy to adjust, the writer having used one for some time with excellent results.

The pi network in some s.s.b. circles has been rather disparagingly spoken of. The writer is of the opinion that a number of people have condemned the circuit without ever trying it.

#### TUNED PI NETWORK

In Fig. 6 is shown another pi network. This unit is a tuned pi network and is known by that name. The circuit has not had a great amount of use in Amateur circles, probably because it is not well known. It differs considerably in its operating conditions to the pi network of Fig. 5.

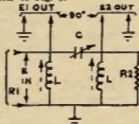


Fig. 6—Tuned Pi Network.

The basic relationships for Fig. 6 are given in the formulae:

$$E_{out} = \frac{E_{in} J R_2}{Z}$$

$$\text{where } Z = \sqrt{\frac{L}{C}}$$

$$\text{and } (2 \pi F)^2 LC = 1$$

$$R1 = \frac{Z^2}{R2}$$

$$F = \text{operating freq.}$$

$$J = \sqrt{-1}$$

From these it can be seen that the input is a pure resistance and that the amplitude balance can be adjusted by variation of the load resistor  $R2$ . When  $R2$  changes the input impedance stays resistive, and the phase shift between  $E1$  and  $E2$  does not change from 90°.

The circuit is operated, tuned to resonance at the operating frequency.

The circuit when designed for a low impedance, say 100 to 200 ohms, practically ensures correct phase shift when tuned to resonance, and the amplitude balance is capable of control independently of the phase shift. For use on 3.6 Mc. the constants for the circuit in Fig. 6 are  $C = 330 \text{ pF}$ ,  $L1$  and  $L2$  each  $3.3 \mu\text{H}$ , slug adjusted;  $R2 = 200 \text{ ohm}$  variable carbon pot,  $R1$  approximately 150 ohms.



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This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

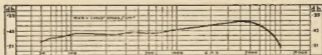
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case  $1\frac{1}{2}$ " diameter (rear),  $\frac{3}{8}$ " thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.  
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# Modifying the AR7 Receiver

## PART FOUR

BY G. M. BOWEN,\* VK5XU

### MAKING A 10-METRE COIL BOX

This section will be devoted to the making of a 10 metre band coil box and its alignment procedure. At the time when this coil box was made, the 33 Mc. beacon stations were still operating and as these were a guide for "break-throughs" on 50 Mc., the range was extended to cover this frequency. However, when you decide to tackle the task it is only a matter of altering the ratio of each air condenser to cover whatever you may wish to have.

As it was desired to keep the receiver coil boxes intact, another Band A box was bought and the coils therein removed and put away for r.f. chokes (that's only my Scotch ancestry, you may feel disposed to pitch them into the waste paper basket). Take care when removing the unit that the small bakelite spur, which holds the coil upright, does not get broken for this is exactly the size to support the new coil.

Freq. Range		Bandspread	
Dial Reading	Freq. Mc.	Dial Reading	Freq. Mc.
462	28	224	28.0
340	28	220	28.1
276	27	215	28.2
224	28	210	28.3
175	29	205	28.4
132	30	200	28.5
91	31	195	28.6
53	32	190	28.7
22	33	185	28.8
		180	28.9
		175	29.0

A set of 28 Mc. band coils manufactured by R.C.S. for their multiband unit was purchased and modified for the purpose. As this would be at least seven years ago, these coils may not be available now, so the exact details of each coil will be furnished in the text and by diagram. The location of the connecting wires can make quite a difference to the ultimate performance on this band.

A-band coil box has not a second air trimmer, so four 21 plate condensers were obtained from disposals and installed into the vacant positions for C2, C4, C6 and C8. If these are not available from any source, it may be possible to obtain small Eddystone trimmers and make up the necessary capacitance with good silvered mica or special ceramic types with zero coefficients. Maximum capacitance range should be about 70 pF.

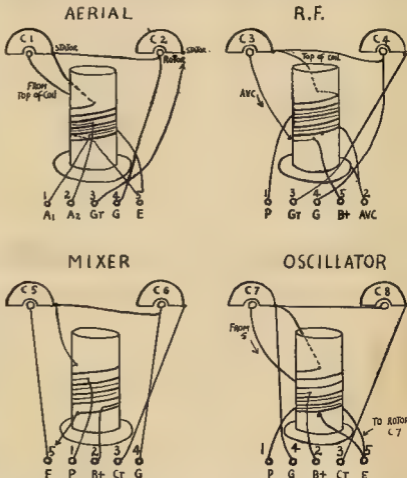
Before mounting the condensers make sure that the rotor contacts are clean and fit tightly, for very slight movements due to vibration can make the alignment a nightmare if there is the least bit of sloppiness. That same

warning goes for all the components and rigid mounting of the coil and its associated wiring is of prime importance. Use bare tinned copper wire for all the leads, keeping them well away from each other if not tied to the same point. The primary winding on each coil may be wound with enamel covered wire—make sure that there are no dry joints, that's all!

Do not be tempted to add extra turns to the plate "tickler" winding on the oscillator coil or you may find that

From the way that the receiver performs on this range, there does not seem to be any point in trying to use iron dust cores. They generally only add mechanical troubles and if R.C.S. and other manufacturers with more design equipment than most of us have at our disposal, still use air cores for these higher frequency ranges, then maybe it's a good thing to follow suit.

Spread the turns if necessary or use a short-circuit turn as the National does.



suddenly the oscillator will jump frequency as the plate circuit takes control (being usually of a higher Q than the grid coil with its 50K resistor across it for bias).

The diameter given for the grid coils, is taken across the outside of the windings. Some adjustment of the length of the coil may be necessary to obtain the range required, but generally all but major shift can be accommodated by adjusting the two air trimmers.

Alignment procedure follows the system used for Band E coil box but with these preliminary steps. The oscillator unit is adjusted to cover the range required either with a modulated oscillator or frequency meter. Unfortunately it is not possible to use a grid-dip meter with these coils for very obvious reasons. Getting the oscillator on the high side of the signal is a little tricky because with the output of the modulated oscillator attached to the grid of the ECH35, there is practically

\* 73 Portrush Road, Toorak Gardens, S.A.

no selection of the frequency by the mixer coil.

A good tip is to always swing the mod. oscillator down from the high frequency end until the signal appears and then, continuing on to about 900 Kc. lower, the signal that is wanted should appear.

If the condensers are similar to those described in the text, then the settings given in the coil data will allow a fair setting to start the alignment.

The conversion cannot be hurried, so be prepared to spend quite a lot of time without becoming discouraged. Aligning a new set of coils can take up to four hours—so good luck. When it has been done you will be satisfied.

The next article will have the band-spreading of the E band coil included, so you may prefer to leave the alignment of this band F coil box until then.

# COIL DATA

## Aerial—

**Grid:** 5 turns No. 22-24 tinned copper,  $\frac{1}{8}$ " outside diameter of coil; length  $5\frac{1}{16}$ "; polystyrene tubing; air core.

**Aerial Coupling:** 2 turns No. 40 silk covered and interwound as shown.

**C1:** 16 plate; 9 stator, 9 rotor, air trimmer.

**C2:** 21 plate; 10 stator, 11 rotor, air trimmer.

## R.F.—

**Grid:** 5 turns No. 22-24 tinned copper,  $\frac{1}{8}$ " outside diameter of coil; length  $5\frac{1}{16}$ "; polystyrene former; air core.

**Plate Coupling:**  $3\frac{1}{2}$  turns No. 40 silk covered and interwound; air core.

**C3:** Same as for aerial box; half in mesh.

**C4:** Same as for aerial box; three-quarters in mesh.

## Mixer—

**Grid:** 5 turns No. 22-24 tinned copper,  $\frac{1}{8}$ " outside diameter of coil; length  $5\frac{1}{16}$ "; polystyrene former; air core.

**Plate Coupling:**  $3\frac{1}{2}$  turns No. 40 silk covered and interwound.

**C5:** Same as before; half in mesh.

**C6:** Same as before; seven-eighths in mesh.

## Oscillator—

**Grid:**  $5\frac{1}{2}$  turns No. 22-24 tinned copper;  $\frac{1}{8}$ " outside diameter; slightly longer than  $5\frac{1}{16}$ "; spread to obtain correct inductance value; air core.

**Plate "Tackler":** 24 turns No. 40 silk covered; interwound as shown, starting below the grid coil.

**C7:** As before; one-eighth in mesh.

**C8:** As before; three-quarters in mesh.

**N.B.—C1-C8 do not correspond to values in the AR7 circuit diagram, but only to this article's diagrams.**

# D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

## PHONE

Call No. rises	Cer. Cnt. No. rises	Call No. rises	Cer. Cnt. No. rises
VK3ATN 26 123	VK3JD 1 123		
VK4HR 12 123	VK4KS 9 123		
VK4J 21 123	VK6KW 4 123		
VK6RU 2 123	VK4BW 23 147		
VK3BZ 2 176	VK3LN 11 141		
VK3JE 10 123	VK3JE 7 140		

## C.W.

Call No. rises	Cer. Cnt. No. rises	Call No. rises	Cer. Cnt. No. rises
VK3KB 10 225	VK3CX 25 216		
VK4J 22 224	VK5BY 45 123		
VK3BZ 6 222	VK3EO 2 123		
VK6RU 5 214	VK3YL 25 176		
VK3FH 12 215	VK4EL 8 176		
VK3XU 46 213	VK6RU 15 172		

## Amendments

VK3JE 21 145	VK6RU 43 123
--------------	--------------

## OPEN

Call No. rises	Cer. Cnt. No. rises	Call No. rises	Cer. Cnt. No. rises
VK2ACX 8 222	VK3JE 12 210		
VK4HR 7 223	VK3HG 5 201		
VK4J 22 222	VK3NS 10 123		
VK3BZ 22 221	VK4EL 10 175		
VK3XU 21 221	VK6RU 12 171		
VK6RU 8 210	VK3DI 2 170		

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A handsome Perpetual Trophy is awarded annually for competition between members of the W.I.A. in Australia and its Territories, inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed, framed photograph of the Trophy.

**Date of Contest:** 1st December, 1957,  
to 31st January, 1958.

## RULES

1. There shall be three main sections to the contest:

3. All Amateur v.h.f. bands may be used, but no cross-band operating is permitted, with the exception that 50-54 Mc. and 56-60 Mc. will be considered to be the same v.h.f. band for overseas contacts.

5. Only one contact per station per band is allowed each calendar day and arranging schedules for contacts on other bands is not permitted.

7. Entrants must operate within the terms of their licences.

tween 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number will be 054, for the third 055, and so on. If any contestant reaches 999 he will start again with 001.

10. **Scoring:** Scoring will be based on the table shown herewith.

Name	Section
Address	Call Sign

**Declaration:** I hereby certify that I have operated in accordance with the rules and spirit of the contest.

12. The right is reserved to disqualify any entrant who, during the contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

### SCORING TABLE

The score for the first contact with any particular call area on each band will be that shown in the above table. For each subsequent contact with the same call area on the same band the score will reduce by one point until the contact value reaches 1, when all further contacts with that call area on that band will retain this value. In addition a bonus of 20 points may be claimed for each new call area worked on each band.

### EXAMPLE OF RECEIVING LOG

[illegible]

NOTE.—The standard W.L.A. Log Sheet follows the above form.

## FIFTY-SIX MEGACYCLES AND ABOVE

## 56 Mo. NOTES

[illegible]

Intermediate contacts on 80 Mc down the eastern seaboard were a feature of the band during the winter, signals following the pattern of the 27 day cycle. Admitting that 6 Mc. more is a lot of frequency spectrum, the trick should be turned again with conditions approaching their peak. Whilst the slope to peak conditions is acute, when the peak is passed conditions taper off far more gradually, giving more years of good to fair results.

No reports have been received of reception of 80 MC of VLF in the range of 80 MC. It would be a pity if we did not pay more attention to these skeds because conditions are reputedly poor, awaiting the time when some of the old skeds are decided on. These fellows are operating for our benefit as much as their own and it is up to us all to make the best use of the time. The first occurred as early as August, the month following bringing VK/KH8 and ZL/JA contacts on 80 MC. It is obvious that the VK skeds are not themselves a very high priority, but attention to 80 MC Remarkable conditions have prevailed in other parts of the world, full use has been made of the time. The first was a rather when it appeared. LU7AT, GSQED the countries which include VK, XC, CC, GA, and the J.A. stations worked consistently into South America, with the North to South America path open also. October should provide some of the best conditions for the J.A. stations of cross-band work. Whether we try and succeed, or try and fail, is to our credit if

A parting thought. Regulations call for the frequent identifying of a carrier put on the air, and this applies to 54 Mc. as well as any other band. Do not leave the listener up in the air by failing to this. It is also an excellent idea to state the approx. freq. of the station you are working to help others find their way around the band.—VK3OF.

### ALTERATION TO 6 METRE SCHEDULE

With regard to 6 metre signals from KH6CCZ the schedule is now altered to 2230 GMT each Saturday (Sunday morning Australian time) only, instead of daily. He will also beam to VK on I.G.Y Regular World Days. These are August 13, 23 and 26.—Norman Burton.

## NEW SOUTH WALES

All members of the V.h.f. and T.v. Group are indebted to the grand way in which Max 30T conducted an excellent and most interesting lecture on 7th June regarding the use of a 17 inch t.v. tube for alignment of i.f. channels. The Group look forward to the next occasion when Max may be prevailed upon

The committee formed to assist with I.G.V. matters are progressing very well and by the end of June it is expected that ZEBD, ZANU and ZER will stage a rehearsal of the event. During a country tour by IARG, who visited the ZANU and ZER camps, a number of new contacts were established. ANY, of Grafton, is looking for 2 mm sigs-VK4s will be holding a convention at Palm Beach JVU and ZANU have been heard and worked from Sydney. ZASA and ZBE are also very active. Roy SHO has been splashing around in the press about C.D.E.N. activities and especially mentioned the value of portable light equipment.

Conducted by Jim ZED, the Treasure Hunt held on 8th June proved to be very popular and Jim made a most interesting day for all who took part. Points were scored as follows.

20A 11, 22C7 3, 2A7 3, 2A20 4, 21L 3.

The route chosen by Jim commenced at Parramatta and traversed East Bankstown, Georges River Bridge, Krawee, Yennora, Condell Park, Fairfield, and Silverwater on Parramatta River.

The usual monthly night hidden to hunt was held on 26th June when ER 2AFM set up on the edge of Concord Golf Links and awaited the arrival of the bounds. He was not lonely for long and stations arrived as fellows 20A 27 minutes, 1AWZ 41, 32BD with 1ANF and 2ER 51, 2ATO-3AZO 55, 32AV 63, and 3HL 93 minutes. It was a mild winter night and the usual hot dogs and coppers completed a very enjoyable evening. -2AFM

## VICTORIA

**Fox Hunts:** Eric JADU acted as fox at the June hunt and despite the rain 12 hounds turned up. The winner was Roy JARY 20 points and Tom JAOG was second with 18 points. At the August hunt on Wednesday, 14th, Roy JARY will be the fox.

The Eastern Zone have decided to run a 2 mx fox hunt once a month on the last Sunday, the first hunt was to be on July 30. These Eastern Zone boys are really on the ball. Congrats on the fine move and I hope the events are a big success.

576 Mc. As feared, the good intentions for this band have fizzled out. However, Bruce 3VF has indicated his willingness to go portable with 576 Mc. gear during the next field day season if he can be sure of some contacts. He is on 144 Mc. most Sunday nights and so if you are interested contact Bruce and see if you can work out something.

144 Mc. A couple more new stations have appeared on this band over the past month—JBN and JZBT, whilst JZAH hopes to be on very soon.

Frequencies of some of the Gippaland gang may be of interest, so here they are:—

3DY	144.18 Mc.	3ZAB	144.55 Mc.
3TH	144.53 Mc.	3ZCG	144.85 Mc.
3ZD	144.62 Mc.	3ZCR	144.85 Mc.
3ACA	144.18 Mc.	3ZDP	144.65 Mc.

There is an intra-zone hook-up on 144.18 Mc on Thursdays at 8:30 p.m. George JZCQ is looking for Melbourne and Ballarat contacts as he wants to try out his new 32 element beam, so turn your beams east and see what you can work.

Anybody wanting an extra QSL card, have a look on 146.27 Mc. Ken 3AWU runs a stabilised transmission on that frequency now and he promises to QSL anyone who will bother to tune up that far.

shown in this band and on one Sunday afternoon there were at least seven stations on the air—and that's a crowd for \$6 Mc. Some more stations with gear on the band are 30F, 32AI, 32CN, 34ZY, 34CL (Red Hill) and 32CG (Newborough). 32CG operates on 56.0 Mc. and 87.8 Mc. and hopes to be on Sundays and Tuesdays at 8.30 p.m. Peter 32DP at Sale hopes to be on the band before the end of this year.

Well that's the lot for this month. See you in September when I hope to have more news of interest.—JZAQ.

## QUEENSLAND

The activities on the home front have been rather slow as other more pressing matters have been keeping the boys off the air. Quite a number of new shacks are starting to take shape and the boys are starting to talk of high power. The usual 2 mx Hidden Tx Hunts have not lost in popularity as the attendance is still up around the 20 mark.

We have quite a few new boys occasionally putting in an appearance and it will not be long before there are some new signals on the band.

The Tx Hunt in May took the shape of a Fox Hunt with Jim 40B acting as the fox! He did a good job of eluding, but John 4PF, in his Jaguar, stopped Jim within seven minutes! Quite a dash I can tell you. All the boys were hot on the trail, and one contestant even parked behind the fox, outside the "Albion," without knowing it!

John AFP, having won the event, had to hide the tx the next month. This he did with the assistance of IZAE. A site was chosen, after considering the possibilities of several others, a week before. The tx was hidden close to the Brisbane River, just opposite the University, amid barkings of a crazy dog and the not-so-soft epithets of fed-up neighbours! A line-of-sight bearing cut the river in several places: things started to get tough, but Jack

JO and a crew of helpers found the tx in 38 minutes. Ross LZAT came second, finding the tx in 50 minutes.

Quite a few activities regarding 3 mx occurred at the '67 Convention, and the majority of these are written up under Divisional notes. However, we can say again that Jack GJO is the Queensland Blindfold Champion for 1967.

## SOUTH AUSTRALIA

Activity in these regions had not been great at all in this Division, cold weather, poor long-range conditions and, of course, a lot of buildings to get going on 56 Mc. has kept the bands quiet. Neil 32AW has been tower and beam building and whilst has been on a bit, it is not very strong here for temporary ant. it is only a few feet up—am looking forward to hearing the new signal squirter Neil and, by the way, a correction—last month's notes were fault I think, stated inter alla "get going on 36 with 3 tubes. Should have read "get on

Must have been a month of mistakes for all this QTH when the gear was returned to service put the 2 mhz rig on the air and was getting no replies or not hearing anything either and didn't do any good till the G4ZU was taken off the rig and the correct ant. fastened to it Moral! Mark the things correctly when dismantling.

BUI SZAMZHUH goes mobile, had the pleasure of working his sig from Freeling to Gwawron. Recently he was able to find the way. Bok reported his own sig came from the direction of Albany, but no QSO made of it for he could not copy them on 8 MK. Had luck WBO, but stuck with 7 MHz. He has been contacted by Hughie SBC who find intermediate on 8 Mhz as very interesting conclusion is a series of pel- licles. He has been contacted by Hughie SBC who made with SZAM and has heard MA ZCWA and 8NN at readable strength, but due to QSB he cannot hear him clearly. He has been making made of it, although Hughie SBC, who acted as intermediary, copied both ends and was able to hear him clearly. The other two stations, Keith also reported that the news previously circulated that he had worked inter- mediate on 8 Mhz was true. He has been hearing remains the usual 3 x 8 plus 60 db.

David SZM has his 5 mhz gear going and would welcome skeds, so test them up with the 14 MC. He has a QEQM/40 final on 5 mhz into an out. He uses a QEQM/40 final on 5 mhz into an out yagi with 8db, to that final, but will use the 5 mhz gear. He can only guess it's up to the 5 mhz gear standard.

Col. SRO and Ken SKC were heard at 8 mhz recently and also advised lack of activity on 8 mhz. SRO has a QEQM/40 final on 8 mhz and has heard 8ZAW, 8ZAQ and 8ZBA on that freq. He has been told that George SKC is an intermediate station and is working on getting forward to developments from that quarter. He will definitely be attempted at this QTH when the 14 MC. a.s.b. exciter is done. Interim plans are to use the 14 MC. a.s.b. exciter. He will do for both the h.f. and v.h.f. bands. One point worth thinking about and that is that the 14 MC. a.s.b. exciter is a very good one. It is lower sidband for v.h.f. and upper for h.f. so it might pay us to adopt that standard. The 14 MC. a.s.b. exciter is a very good one, particularly for when it develops into vco operated break-in, which is one of the advantages offered.

## WESTERN AUSTRALIA

The Fox Hunt held on last June was a great success for the fuxes, Don SZAV and co-drivers Ray. The tx was hidden on the foreshore Bicton Jetty with the beam pointing up river towards Kings Park, the assembly point. Only one made the grade, Rojo BBO, who came down the only road in to the petty; the others spent the time sitting from one side of the river to the other. Spot lights were very much in evidence. Supper and post mortem were held at Roy Chamberlain's QTR. The next Hunt we hope will be held on 28th Mc.

The V.H.I. Group meeting on Saturday, 8th June, was held at Syd 88J's QTH. Business was disposed of in quick time and after a short ragchew, Dennis 5AW held the attention of the meeting with a talk on the Theory and Practice of PI-Couplers, which was enjoyed by all, as also was the supper.

Activity on 144 Mc. is not as good as we  
be desired, so what about it chaps?  
So Mc. Checks with 6WG (Albany) has  
so far produced no results. It seems that it is  
easier to get through on 2 mX than on 5 mX.  
Tom 6TH has a converter for 5 mX; we  
know it works because it was checked by  
Rolo 6BO with 6ZAV's signal. So far we have  
6BO, 6GB 6ZAF, 6HE and 6ZAV on 5 mX. I  
must not forget 6RK—he has his converter  
working, working cross-band 144-88 Mc. with  
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## C.D.E.N. NEWS

We are pleased to welcome Roy Hart, VK2HO, to the ranks of Divisional Co-ordinators. Roy's experience at the Commonwealth Civil Defence School will prove valuable in guiding the N.S.W. boys towards the ultimate aim of the combined emergency services. Jim Corbin, VK2YC, no doubt, will appreciate the rest from the strain imposed during his long term of office.

Divisional Co-ordinators desiring to follow in the steps of VK4 may obtain from their State Emergency Directors loan of films suitable for screening at Institute meetings. Members of the Institute whether active in C.D.E.N. or not, will learn much from these films.

Equipment for emergency use can be relatively simple, however it must be efficient, stable and rugged. Components used should be of a type readily available or for which substitutes are available which readily mount in the same space. Obviously for quick transfer between fixed channels crystals are a must, however provision must also be made for v.f.o. operation.

The foregoing does not mean that equipment need be elaborate or complicated. Even if some commercially minded people do sneer at the finished product it is the results that count. Your Publications Committee would appreciate the opportunity of publishing articles covering suitable equipment.

Irrespective of the outcome, members of VK4 and VK8 are to be applauded for their persistent efforts to reach the father of a very sick Melbourne boy so that he could speed home from New Guinea to comfort his boy. That was one time when Hams at the receiving end could not be expected to be aware of impending emergency. However, it does stress once again the need for local Hams to be in readiness whenever there is any indication of an emergency developing in any form. Disasters due to weather in the main are at least preceded by weather forecasts which serve as a warning. Just as, generally speaking, conditions suitable for bush fires do not develop overnight.

Naturally such things as explosions, freak cloud bursts, collapsing dams, do not advertise the coming event. In such cases we can only be expected to assess the communications

requirements and commence operations as quickly as possible. This means that the greater the number of operators who can leave a receiver running on the emergency calling frequencies of 3561 and 7303 Kc., the greater the possibility of establishing contact quickly.

The easiest way of ensuring that the greatest number will hear an emergency call is to adopt the system of employing an adaptor which feeds into the family receiver 12 stages. In the average household the radio goes most of the day so that a call on the frequency immediately impinges on the local programme, enabling the YF to carry out previously laid down drill for such events.

In the evening of course the OM only has to put down his newspaper and toddle out to the shack, unless of course he is one of those lucky individuals with remote control from the fire-side.

Federal Co-ordinator, W.I.A.

## REMEMBRANCE DAY CONTEST, '57

Have your equipment ready for this Contest on 17th and 18th August. See the June issue of "A.R." for Rules; also additional rule in July issue page 18.

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## YL CORNER

BY PHYL MONCUE

### A CONVERTER FOR THE XYL

Several QMs have come along to me and said they wish I would have a talk to their XYLs and try and make them see the right side of Amateur Radio. Their comment was, "You seem to be able to put up with it but my wife just can't stand any part of it." Well here it is, but it is directed more at the QMs than the XYLs.

Firstly and foremost, don't try to rush her, give it to her in small doses. Don't just throw the handbook down in front of her and tell her to read that. After all her cook-book wouldn't look very interesting to you, now would it? Say if the great Einstein were to place his theory of relativity in front of you, would it mean anything to you? No, of course it wouldn't. But should the great Einstein explain it to you, little by little, it would then become highly interesting. So you just pretend you're the great Einstein and really try and help her to learn what it's all about.

Don't be too jealous with your precious hobby, share it with her, let her do some of the wiring and perhaps wire up a converter for mobile work, that's bound to appeal. But make sure it works even if you have to re-wire it yourself sometime when she's not around.

Teach her the code. Most women take very early to c.w. and you'll probably find after practice, she'll be able to beat you at it. This won't do you any real harm and will give her a sense of achievement. C.W. can be very handy as a means of conversation when you don't want the children to know what you're talking about. We use it at our QTH but our hormones retaliate by talking in pig-latin and we can't understand them.

Explain to her the elementary things about radio and keep getting a little further advanced with your chats and you'll find it will grow on her, but guard against giving it to her in big doses as you'll only give her a headache. Be kind and patient when she's slow to comprehend, and above all never be sarcastic when her efforts at building aren't so hot.

\* 236 Union Road, Ascot Vale, Vic.

Teach her the Q code and other abbreviations so that she can better follow the conversations on the air. When there's a contest on, give her a part in that too. Keeping the log or writing out the QSLs will keep her interested and content, can be really exciting when the bands are busy, even to an XYL. Helping you to recognise faint c.w. signals even though you know darn well they are! will bound to appeal to her and make her feel very important and necessary.

Try getting her to come along to the transmitter hunt picnics or the fox hunts for a start, she'll meet other XYLs there and if she drives the car, let her do the driving even if she can't drive the car as well as you think you can. The very driving of the car will, as well as probably giving her a lot of enjoyment, make her feel that she is playing some real part in it and is necessary to you. If she tries to start the car off in the gear, don't do your jolly, she's probably only trying to save time and get there a little quicker. And if she grates the gears and you must groan, then for Pete's sake keep your audio down, she may not have very great selectivity with the gear stick, but she's probably got high sensitivity of feelings.

If she doesn't drive the car, let her be the navigator and teach her to tune in the signal and line the beam up on it. Forget that this listening period will probably cause you to come last in the next few hunts, but that part of it is not nearly so important as being able to do something together and in time she'll probably turn out to be a real help to you.

Try and be tidy with your equipment, particularly if the shack happens to occupy one end of the living room. There's nothing that turns an XYL off Amateur Radio more than untidy radio gear all over the house.

Actually getting a licence will, in most cases, be a bit beyond the normal XYL who has forgotten any maths she ever had and with a home and family to cope with, can't afford the enormous amount of time and study necessary. But it's really not essential for her to be licensed, but if you do enjoy your hobby together, but make sure she feels it's her hobby too.

Oh, and remember, there are other things in the world besides Amateur Radio! Don't forget to take her out sometimes to places where she likes to go, even if it happens to be to the ballet or the theatre, and the thought of it nearly kills you; just make sure you don't kill her with an overdose of Amateur Radio.

Well there it is, Einstein, go to it and good luck!

## S.W.L. SECTION

Once again I begin my monthly group. No doubt you will guess what it's about. You're so right I look at correspondence and you know see these notes it will only be because of the Editor's kindness (fine chap I might add) as they are supposed to be in by the 8th of the month. I've half off until me, the 8th, but alas, no mail today either, and only one letter received before this. So come on new chaps, move your hand off until me, the 8th, but I'm interested in this page, or else! Or else we'll have to give it up, see! Now after this dire trial of woe, we will proceed to my next complaint.

You may have noticed that last month I said things had almost become normal now. Well now I think I've said it all and I'm not sure. My trouble is that when I'm ready to do a bit of listening in the evening the new harmonic is either asleep going to sleep or awake and has to be watched or nursed or something. No evening's s.w.l'ing is therefore forthcoming. Secondly, early in the morning she doesn't wake up anyway OK you reckon? Well that means that I don't get out of bed early and listen then either. As a result I am currently not hearing anything much at all.

### VICTORIA

June Group Meeting.—This meeting was well attended and if it weren't being printed, The first portion of the meeting was devoted to a discussion of future activities. Many good ideas were put forward and arrangements made for the future. Plans of interest. The time was then spent discussing a receiver building project for the Group. It was decided that a two small table top type receiver would be built. A donation of a disposal v.h.f. rx from George 3WJ and an old super-heterodyne from the Victorian Division has provided the stock supply of parts to allow work to be commenced.

Future Programme.—A visit to the Newport Power Station has been arranged for the 15th August. As it is a day of interest, it will go along has to be known, anyone who wishes to attend is requested to ring the Group Secretary, Mr. H. J. B. 3550, Ext. 81, no later than the 7th August.

Visit to TV Station HSV1.—This visit will be held on 22nd September. Again as the exact time of the party is not known, you must contact the Group Secretary. Preferences will be given to those who put their names down for the QTY visit, which, unfortunately has to be cancelled.

August Group Meeting.—This will be our annual meeting and election of office-bearers for the next 12 months. So come along and we'll find a job for you. At this meeting we will be entertained by Noel 3ANS, who will show us film on the time and also some shots taken during the Group visit to D.C.A. at Ex-Endon Airport. More arrangements are being made for interesting talks and, of course, keep your eye on this column and listen to the 3WJ Sunday broadcasts for further announcements.

### SOUTH AUSTRALIA

John Campbell, WJA-1501, tells us more of the June Group meeting. Normal business was suspended to allow members to visit broadcast station 3DN. Arriving at the studios in North Adelaide the morning was fine. People who they thought had probably become lost or something, but had instead gone there direct. Their look over the known you must find most interesting and then they went out to Dry Creek to examine the tx. The degree of automatic operation surprised everyone as no engineer is on duty at the tx and even the heating conditioning plant can be turned off and on by a telephonic circuit from the studio.

Many thanks are due to Warran 3PS for arranging this outing for the S.W.L. Group. John mentions something about the "best broadcasting station in the world" and I believe that for announcements also. Right out, John also tells me that he has now 110 countries verified—the latest card coming from Radio Tahiti. Of the 110 countries about 25 have been verified on the Ham bands.

Well chaps, this brings the notes to an end again for another month and if I don't receive some mail soon, probably to an end for good. Why not send me enough information about yourself to allow me to write you up as S.W.L. of the Month, and help me continue this job. I've haven't the time to run around Melbourne interviewing chaps all the time I'm afraid, and besides, it's cold weather now. So till next month I'll say cheerio to all and begin watching for the postman.

\* Compiled by Ian J. Hunt, WJA-1307, 211 St. George's Road, Northcote, N.18, Vic.

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## CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

### EMERGENCY NETWORK

Editor "A.R.", Dear Sir,

It would be wrong to detract from the commonsense and experience apparent in much that VK5E has said. On the other hand, to be a "fanatic," however, to detect in his remarks about telegraphy a fallacy which is usually based upon experience.

In 20 years of work on communication circuits which have required proficiency in both modes of transmission, it has seemed to me that the following should be stated as a general rule: In case of operational urgency, provided it is possible to give a good circuit directly between the people whose job it is to get upon information exchanged, telephony is the obvious choice. But the ship's master, the aircraft pilot and the doctor can be busy people in an emergency. Now, with intermediate parties involved, accuracy usually demands that information be recorded together with evidence of its origin. And for both reasons, in the case of telephony, the use of a hand-held telegraph can "clear the hook" while the poor old tapper is still trundling along with phonetics. To pitch the matter at its lowest, it does not take much effort to cultivate the slow, steady morse with which an out-station can still communicate in conditions which telephony would not use.

It is interesting to note that a recent job of evaluation by the U.S. Navy produced conclusions rather like those stated above. In instances like the said and potentially dangerous antics of the Army net operated by VK5E are unfortunately common. But if they illustrate a need for different equipment they also serve to show that no equipment and no organization can be better than its operators. A resourceful type I once knew tramped for some time in the bush, and he carried a radio call, he had given his only crystal a good rub in river sand! And it will take me some time to get my head round the operator who has the rest of the net for the fact that his own carrier was running. . . .

By all means let us study Service examples and there are possible benefits from them. But the Amateurs we need are those who suggest alternatives for themselves (not evaluate in advance) the skills that people can be trained to employ in the use of the equipment and particularly between A and B, using a reasonable minimum of power and equipment in which both make use of the key. It will be found that some assumed necessities can be done without. We can only guess at the nature, let alone the magnitude, of emergencies that could best be met. Let us leave the guesswork to that department.

—W. W. Watson, VK7YF.

Editor "A.R.", Dear Sir,

The letter by VK5E in the July issue of "Amateur Radio" prompts me to contribute this discussion to the Emergency Network.

I am in complete agreement with all the points expressed by the writer, particularly in regard to the reliability of equipment used. In emergency service there is absolutely no room for equipment which is not 100% stable, 100% efficient, 100% reliable and maintained ready for all time for immediate use. An operator who, on being called to an emergency, has to race around with odd bits of wire and a soldering iron before his gear can be put into operation is a liability to the emergency service. Neither can the use of anything but the best in commercial, ex-service, or home constructed equipment be expected to inspire confidence in the minds of the authorities, and all those connected with an emergency operation.

In connection with the proper set-up for Emergency Stations, several points come to mind. For instance, how many Base Stations, or proposed Base Stations, are there in the City Area, would be able to carry out their duties and operate full power if the a.c. power lines were put out of action? How many of these stations have on hand a means of made provision for connection to emergency power plants? How many Base Stations have telephones connected to the operating room? This is essential.

For operation in the field, are there any stations, with portable power plants, which could operate full power for 24 hours at a time at an isolated base? Battery charging facilities may not be available, and conditions generally require maximum power for effective communication.

For mobile operation all equipment, both transmitting and receiving, should be xtal controlled. Xtal control is important for all equipment used in emergency services, and is particularly necessary for mobile use. Admittedly there is some quite good mobile gear in use which does not incorporate xtal control in the receiver, but it would be all the better for it. If xtal control is not available in the receiver, facilities for setting to the transmitter frequency are essential. Dial locks would also be advantageous.

Portable equipment of the "Handle-Talkie" type appears to be receiving some attention, both on h.f. and v.h.f. This equipment should be of a standard similar to all other gear. VK5E's remarks should be carefully noted!

It may be argued that some of the suggestions made above are unnecessary and extravagant. However, all of these ideas, which should definitely be considered necessary in an efficient Emergency Network, are due to particular deficiencies which have been noted in work with another emergency organisation. It may also be argued that the cost is far too heavy for the average Amateur, and if such equipment is to be of any use, it must be limited to the favoured few. I would suggest that any Amateur in Emergency Service should first decide his capabilities, and then select the equipment which he needs. The most important thing is that no matter whether the choice be Fixed or Portable Base Station, Mobile or Portable gear, the Amateur should make himself proficient in this field, and provide and maintain suitable gear of the highest standard.

Regarding emergency operation generally, it might be well to remind Amateurs, particularly metropolitan Amateurs, that in Victoria there is already a State-wide voluntary emergency organisation which is reasonably well set up and operates fairly efficiently.

This organisation is concerned mainly with bush-fire emergency work. During the summer season operations are carried out continuously, and maintain daily "baked". For the remainder of the year most Regions hold weekly or bi-weekly "baked" in order to maintain their equipment at full efficiency. These operators would no doubt be very willing, and would probably expect to assist in any other type of emergency. Therefore in order to avoid confusion and unnecessary duplication of equipment and personnel the setting up of effective and reliable liaison between emergency organisations should be of paramount importance. One wonders, too, what the attitude of this, or any other emergency network is, toward an Amateur C.D.N. and vice-versa.

I trust that this letter will encourage further discussion on this matter.

—James R. Barber, VK1ABT.

### RE: VK5E

Editor "A.R.", Dear Sir,

I take exception to the article in "A.R." July 57, "Single Sideband is it better than Amplitude Modulation."

I feel that WCRH has misrepresented facts and in the case of signal-to-noise ratio, justified his mathematics to achieve his desired

results. May I give my version of signal-to-noise ratio and criticize other aspects of the article.

In the case of receiving a 100w. s.a.b. signal on a receiver of 3 Kc. bandwidth the signal-to-noise ratio will be 100 divided by 3n.

In the case of receiving a 100w. d.b. signal on a receiver of 3 Kc. bandwidth the signal-to-noise ratio will be 50 divided by 3n.

In the case of receiving a s.a.b. signal on a receiver of 3 Kc. bandwidth the signal-to-noise ratio will be 100 divided by 24n, and on d.b. in 6 Kc. also, 100 divided by 24n.

This indicates that where the receiver bandwidth is chosen to suit the signal being received, 1 Kc. for s.a.b. and 3 Kc. for d.b. there is a 2 db. advantage to s.a.b.

WCRH points out that the main disadvantage of receiving d.b. is the phase requirements of the carrier. This also incidentally is the reason why s.a.b. signals with poor sideband suppression are so hard to tune in on some receivers. He then mentions phase locking circuits but apparently suggests that they are so simple as to warrant no further mention, but rather suggests we go over to the h.f. reception of the d.b. signal. This is in effect throwing away 3 db. which by his peculiar brand of reasoning he tells us is not available. It is because it is needed.

He later mentions d.b. adaptors for the receiver and tells us that they are beyond the scope of his present article, having in a previous paragraph dismissed phase locking circuits in favour of s.a.b. reception.

His remarks on average QRM on a Ham band being the same for s.a.b. or d.b. seem to have completely overlooked the fact that this would be a consideration, only if the receiver was simultaneously receiving a spectrum as wide as the Ham band in question. As a practical receiver receives only 3 to 10 Kc. at a time the average QRM is not important so much as the instantaneous QRM on the frequency the receiver is tuned to.

Of his three points in conclusion, I would suggest that point 1 should read—s.a.b. has a 3 db. advantage over d.b. (suppressed carrier), point 2, s.a.b. will reduce QRM; point 3, while s.a.b. is more difficult to generate than d.b., its difficulty is severely over-rated.

I feel that I should point out the difference in receiving a good s.a.b. signal and a good d.b. suppressed carrier signal.

In receiving s.a.b. the reinserted carrier at the receiver must be reinserted at least within 80 cycles of the correct frequency.

In receiving d.b. the carrier must be reinserted within 10 cycles of the correct frequency, and must have the correct phase relationship to the sidebands. In the alternate case of receiving d.b. on a s.a.b. receiver the frequency is not so intolerant and the phase requirement is no longer necessary. But the receiver must be capable of rejecting the unwanted sideband by at least 25-30 db.

No doubt s.a.b. versus d.b. or a.m. will serve a good purpose in airing points of view and ideas, but may I suggest that nothing but harm will be done by any abuse by distortion of facts and statistics to achieve certain preconceived conclusions.

—Cyril Edmonds, VK1AZE, s.a.b.

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# DX ACTIVITY BY VK2QL†

3.5, 7 and 28 Mc. have not produced much interest in the DX fraternity of late and 14 Mc. not showing much activity after about 1100z in the Eastern States. Due to my own inactivity my knowledge of conditions is limited.

## NEWS AND NOTES

The 3W8AA QSL position is still confused. I had a long talk with Phan and he said he gets no QSLs via Saigon and only 30% via Canton. His new avenue is via Box 68, Praha, the OK QSL box, and OKIFF is doing the honors, so far quite successfully. Phan has tried sending cards outwards via the VSI Bureau, XW8AB, but is doubtful if they have reached their destination. I suggest that if you have not yet received a card from 3W8AA, try another from the OKIFF route. Phan waits until he gets your QSLs before sending one.

VK0AB finds that 3.5 and 7 Mc. are of no use at the present time in Antarctica.

ZD4 contacts after Mar 5, '57, will count for Ghana. Prior to that date will count for Gold Coast. So-two countries for the same geographical location (2ACK).

The Saar (9S4) after April 1, '57, is not a separate country but counts as Germany (2ACK).

Trieste contacts after April '57 will count as Italy (2ACK).

FW8AA can usually be found on the rare occasions he is not frightened off by the "dog pile" round 1430 Kc. (2AGH).

UA6OM is in the news again. QSOed at the end of the month he gave a QTH indicating he is in Zone 23 (2AGH).

VQ9HAY, Seychelles, maintains a sked each Sunday at 1300z with VQ4AO on 14 Mc. phone. He is reported to be staying on the island for a couple of months (5WO).

JALJG is located in the Antarctic area (BERS195).

VK2EG claims he has applied for the first Antarctic DX C.C. for his operations as VK1EG. Bill finds even he has difficulty collecting cards for his DX C.C.

For those interested in working the YL/YXs, H80Z can be added to the list (4EL).

## ACTIVITIES

13 Mc. 4EL: DUTVS\*, VSIGX\*, 3W8AA\*, 7 Mc. 8AGB\*, VRIDA\*, 3AMB\*, FYTPQM\*, VETARY\*, VKOC8\*, UH8KAA\*, 3QL FRAJAT\*, KQZB\*, UAL DOKCA\*, Red de Balfear ZD8DT 88 at 2300z, KHE XRAQ\*, BERS195, FK8AT, JALJOAH, KLT, KZ8BB, KR8AK, FY-TYS, VK0AB, UAIKAE, ZL3AS\*, VK0ASH, 14 Mc. C.W. 8AB ZL3AA\*, VSIGZ\*, KQ-BAHA\*, 6C\*, VEJNB\*, LURBL\*, FYIOE\*, C88AS\* (Deception), VKOC8\*, APQ\*, CMCK\*, KV-4AA\*, ZCALA\*, KNDP\*, BVUIS\*, GLDZ\*, VQ2NB\*, JACI\*, VRTFC\*, JAGS\*, UJAA\*, UAB\*, ZL3AA\*, VP2VQ\*, UAIKAE\*, KP4CC\*, VR3P\*, VRIG\*, ITIZGY\*, KQ4UV\*, ZK8AQ\*, DUTVS\*, VPHL\*, 14 Mc. 8AB\*, VK0ASH, UH8KAA\*, DA2\*, KAW\*, HLIAP\*, UJAOB\*, RAK\*, HCIOB\*, FYTTF\*, UAIKAE\*, VK0AB\*, KQ4UA\*, KP4CC\*, KPMTN\*, ZCAL\*, VP-4AB\*, 3AMB\*, FARRI\*, OAG\*, TIRAA\*, 85TPW\*, VRTFC\*, ZD8DT, CRTLU\*, GTGX\*, ZS-BCY Z88RE\*, 3QL VP2VQ\*, GTGX\*, KQ-4UV\*, VRTFC\*, ZL3AS\*, VQ2NB\*, ZK-8AD, ZD4CM, KG1AS VP2D, 8V6WR, FM-

† Frank T. Hine, 38 Abbotford Road, Home-bush, N.S.W.  
\* Call signs and prefixes worked.  
+ zero time—G.M.T.

7MT SWO\*, FBUEK\*, ZK3AD\*, URSWF\*, UO-5FT, WFNK/KPL, 14 Mc. UH8KAA\*, G\*, H8-5CL\*, KEIMB\*, FYL C88AA\*, FBMBD\*, HC-TW\*, KJATP\*, XPIPI\*, XIMBS\*, VYAW\*, LUSLEL, COTNR\*, LUINE\*, COSW\*, BERS-195, CK180, FBUEK\*, HILAC, HLIJL, LUTZ, KQ4AB, VYFPE\*, VSHL, VK0AB, VRKQ, ZJ8JG, 4XKX\*, ZK180, ZK3AD, 85DQ, 14 Mc. 8AB\*, ZL3AA\*, 3AMB\*, FYTPQM\*, VYINAA\*, 4XKX\*, PZLAP\*, HLIAC\*, FYTTF\*, 14 Mc. Phas 8AGB\*, H81NB\*, CM8AA\*, FBERT\*, VPSO\*, 3AMB\*, VYAW\*, C88CO\*, LU4NB\*, TIECH\*, LARC\*, Z8ACQ\*, ZULAD\*, GDF3RV\*, TQ8AL, G8WQ, CTRAH, FM7WQ, BVUIS\*, VYASB, SH, G8WPH, CN-DW\*, VYAW\*, VYVSO\*, YU2SB, 3W8AB\*, 8A3IM\*, SWO, VY3AV\*, HK7LK\*, TGTS\*, TG8MQ\*, VP2TO, HLT, TG8WQ\*, HPIQD\*, H8-5LD, HK7LK\*, VYAW\*, VYVSO\*, 14 Mc. Red de Balfear GDF3RV\*, 45TYL, KR8QK, KR8AP, BVUIS, FUDAD, FK8AS, XEIFY, FO-HLD, H81LD, CQ8G, TG8AC, HPIQD, H8PFL, Y81BS, HK7LK, VYAW, LUSJ, 31 Mc. C.W.: 8AGB\*, 3W8AA\*, YOSZAA\*, UH-DUV\*, SP8G\*, VP7NB\*, LAMB\*, H81BV\*, UBRAL\*, 3W8AA\*, 3QL 3W8AA\*, Z8-3AG\*, FRAJ\*, 3W8AA\*, CX8CM, FARRJ, UQ-3AS, STL, DL3JO\*.

14 Mc. Phas 8AB CRTLU\*, FO8AC\*, UD-8AJ, C88CO\*, VY8BO\*, FBUEK\*, ZS-3AGB\*, OAIPE\*, DL\*, UBBW\*, VP7NB\*, 3AMB, CN8JX\*, CN8JG\*, KQ8AGQ\*, VK8CB\*, K84K\*, 3W8AB\*, H81NB\*, HPIAC\*, CTLDU\*, HK8IC\*, 3W8AB\*, KB8BH, KR8AD, OAG\*, HPIQD, ZYL 4X4BL\*, 4EL, H81H\*, OK1AA\*, ZP8CE\*, 4XKX\*, OAG\*, H8CC\*, VY8CB\*, V8-4TYL, SWO, VZUK\*, VYAW\*, VYVSO\*, V8AJT\*, 14 Mc. C88P\*, Z86GQ\*, Z86DQ\*, H81PS\*, H81FT\*, VP7NV\*, VP7NB\*, VP7EE\*, Red de Balfear: HLIAB, EALJH, CH8EL, BAITYG, MPKIA, Z86Z\*, VYAW\*, VYVSO\*, 45TYL, BVUIS, H81A, DUTVS, V8AJT, KR8QK, VK0QJ, CR8SP, VP7EE, VP8EM, H8-5LD, VP7NB, VYVSO, VY8AD, H8PFL, T818, T81CA, H81JL, C88J\*, A nks list RD.

28 Mc. Phas 4XJ W\*, K8H\*, Z84PB\*, Z8-10Z, Z84APA\*, Z86Z\*, Z86SO\*, Z86AIA\*, Z86MP\*, Z86Z\*, Z86KL\*, Z86JL, VQ8AA\*, OQ8RU\*, OQ8U\*, COSK\*, VY7EE\*, VY8Q\*, Z86Q\*, Z86CU\*, Z86AIA\*, Z86JU\*, Z86Z\*, G8DP\*, ZYL Z86UR\*, VQ8\*, Red de Balfear: 45TYL, H81H\*, Z86Z\*, Z86SO\*, Z86UR\*, XE-IFY, HPIQD, VR8E, FK8AC, KLT.

## QSL SITUATION

2ACK has received cards from OH8AA/8EO and CE8AC. 8AIR: H81B from 1PRH, C88AC, 3W8AA (7, 14 and 21 Mc.), UH8KAA, UAIKAA, LZ-10B\*, SWO\*, VY8CB\*, VY8Q\*, VY8WQ\*, VY8WQ\*, 14 Mc. H81H\*, VK0AB, FM7WQ, G8-5FT, GCFZC, V8AJT, VRJF, HK8AB, EALJH, BERS195, CX8AM, Z86BP, K84K, FK8AT, 85TFC, K84CM, CQ8B, Z86JL, UAIKAC, VQ8AL, ZC4AM, ZD8RM, 3W8AD, Red de Balfear, CH8SP, ETIUS, 8XK: UCAIA, ODJUB, OYTM.

## QTHS OF INTEREST

VP7NB—C/o. A.A.F.B., via Patrick A.F.B., Florida (2ACH).  
H81A—8EL via W8FEL.  
VPKCS is W8GSH.  
HK7LK—Bucaramanga, Colombia (5WO).  
V8AD—Sgt. Mess, R.A.F., Aden (5WO).  
ZD8W—"Red" Tension C/o Nigerian Broad-casting Service, Lagos, Nigeria (5WO).  
WTFNK/KPS—via KHS Bureau.

By the good graces of the Magazine Committee, I have received a copy of the late American Call Book (and the VKs). Each month when somebody lists one of the lesser heard calls, if the call is in the book, I propose to list it in this part of the notes. Russian stations are not listed. So we commence with VRTCT—Via Post Office, Balboa, Canal Zone.  
V8TRT—D. R. Tibbitts, Bellevue Plantation, Marigot, French St. Martin, P.W.I.  
TGS Bureau—P.O. Box 13, Guatemala City.

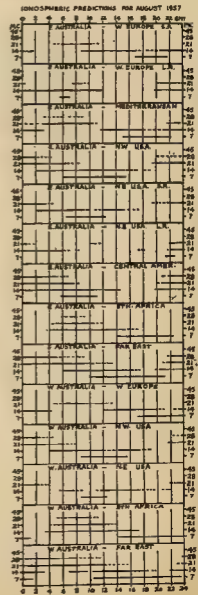
## SPECIAL FOR THE V.H.F. DX'ERS

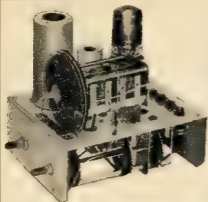
V8K8K has a daily call on m.c.w. on 56016 Mc. w/ 801ts and hoping to get a QSO with the mainland.

And once more my thanks to 8AB who has come closer to his goal with 83 countries. 2ACK with the first lot of 284 worked, 8AGB who is chasing the DX a little more these days, 8AIR on the air again and finding the new QSL to his satisfaction, 3AMB complaints of the lack of the "hard to get" QSLs at his shack, 4EL with his Q88A contacts now numbering 720, 4J3 who hopes for better conditions for all continents soon on 28 Mc. 88K (QSP SH) in the throes of re-building and like me somewhat inactive, 5WO also on the inactive who did not get his TUL QSP to me due to rig trouble and hasn't been heard since,

Red de Balfear finding 21 Mc. the best band at present, and BERS195 who received the grand total of 80 QSLs for the month. Continued good hunting you did? always.  
I feel that the time is now due for some rationalisation of the method of counting "DX countries." There are a number of anomalies these days, one being that mentioned in the early part of these notes regarding Ghana. Another difference which exists in recognition between "CQ" magazine and the A.R.R.L. My thoughts are, whether practical or not I am not in a position to say, that it should be the prerogative of this I.A.R.U. to lay down an official list or principle for the recognition of countries for certificate purposes. SWJ, for example, cannot be counted for A.R.R.L. DX C.C. solely by reason of the restriction that Haman cannot work them, but we can. What are your thoughts? Let's start something.

TYL and 8XK managed to get in under the slip rail, Ruse with the interesting info for the DX on v.h.f. band, 3YL has found 14 Mc. the best band.



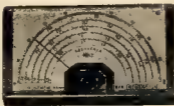


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Few only L333 Ceramic Dipole "T" Insulators, 8/6 ea.  
300 ohm Spaced Feeder Line with spacing insulators £5/14/- 100 ft.

72 ohm Co-Axial Cable 2/3 yard  
50 ohm Co-Axial Cable 2/1 yard  
72 ohm Twin Flat Line 1/- yard  
300 ohm Twin Flat Line 1/3 yard  
Beehive Stand-Off Insulators, suitable for 10, 15, or 20 metre beam arrays:  
Eddystone Type 916 4/- each  
Aegis Type BH2 9/8 each

## AFTER STOCKTAKING SPECIALS

Few only, "Labgear" Wideband Couplers, 3.5-3.8 Mc. 81/6 each  
Few only, "Labgear" 3.5 Mc. Tank Coils, complete with swinging link 35/- each  
Eddystone Silver Plated V.H.F. Coils 3/- each  
T.C.C. "Hikonol" 33 mfd. 2 kv. Photoflash Condensers £10/6/-  
Davenset 2, 6 or 12v. Battery Trickle Charger, £6/9/8  
Eddystone R.F. Insulating Shafts. Ideal where voltage is applied to condenser rotors and stators 1/8  
Z969 Chokes, die cast cased, 25 hen. 80 Ma., 500 ohms D.C. resistance 35/- each  
Z956 Chokes, 30 hen. 200 Ma., 160 ohms D.C. resistance 1,000 volts insulation £23/10/- each  
Few only, OT796 Plate-to-Line Transformers, 30w., ideal remote audio installations. Prim: 6600 c.t. and 3800 c.t.; Sec: Com. 100-125-167-250 ohms, £4/5/-  
AT1204-II 240v.-110v. Auto Transformers, 100 va. £23/15/- each  
14CS Carbon Press-to-Talk Hand Mikes. As used by Taxi Radio and Fire Fighting Services, £4/10/- each  
American G.E. Miniature Fluorescent Tubes, perfect R.F. Indicators:  
110v. G.E. 6w., 9 inches long 11/- each  
110v. G.E. 8w., 12 inches long 9/9 each



## "WODEN" MINIATURE MICROPHONE TRANSFORMERS

Excellent for compact Mobile or Portable equipment. One hole mounting provides for simple hum balancing when used near a.c. fields. Ratio 50:1 overall.  
Type MT101A Mu-Metal screened, £23/14/6 each.

## "WODEN" MULTI-MATCH MODULATION TRANSFORMERS

### Features—

- ★ Potted type compound filled (vacuum impregnated).
- ★ Universal application.
- ★ Primary impedance range. 2,000 to 18,000 ohms.
- ★ Secondary impedance range. 200 to 21,000 ohms.
- ★ Highest efficiency—lowest weight per watt.
- ★ Easy to solder heavily silver plated tags.
- ★ Above or below chassis wiring.
- ★ Capacity. 30 to 250 watts.

List No.	Audio Watts	Max. Sec. L.	Current	Overall Size	Weight
				W. H. L.	lb. oz.
UM1	30	60	120 Ma.	3½ x 3½ x 3½	5 8
UM2	60	120	200 Ma.	5½ x 4½ x 5½	11 8
UM3	120	240	250 Ma.	5½ x 5½ x 5½	14 8

Price: UM1 ..... £7/9/9 inc. Sales Tax  
UM2 ..... £10/13/3 " " "  
UM3 ..... £12/2/6 " " "

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# FEDERAL, QSL, and DIVISIONAL NOTES

## FEDERAL

### RESIGNATION OF VICE FEDERAL COUNCILLOR

Federal Executive has been notified of the resignation of VK2ASD Don Pollard from the position of Federal Councillor of the New South Wales Division.

Although Don did not hold this position for a great length of time, he became well known to those outside his own Division because of his frequent journeymen's Interstate. Besides this it was during his term of office that he made a trip overseas. Now that he has retired from Radio, it is hoped that the call VK2ASW will be heard regularly on the bands.

### AMATEUR STATION AT JUBILEE JAMBOREE

Federal Executive has been notified by the Boy Scouts Association in England that during the Jubilee Jubilee Jamboree (August 1 to 13) at Sutton Park, Sutton Coldfield, an Amateur Radio Station under the call of G88SP will be in operation.

Special facilities have been granted by the British Postmaster-General including permission to radiate a "News Bulletin." This news service will be radiated on various frequencies between 1600 and 2000 hours and 2300 hours G.M.T.

As the station will be carrying out the normal operating activities at other times, the Secretariat is looking forward to making contacts with DX stations. They hope by means of special radiations beamed to suit conditions to reach Australia. All interested are asked to let the call G88SP on bands from 3.5 to 30 Mc.

## FED. CONTEST COMMITTEE

### REMEMBRANCE DAY, 1947

This month, once again, we are celebrating Remembrance Day with the Contest founded to bring friends together, old with young, to honour our Friends who died in Active Service for us all.

Surely a sobering thought, when one recalls that this Day was twelve years ago and that many of our contesters were too young to appreciate the joyous relief that we older ones felt when victory was proclaimed.

Federal Council's decision to ask for a period of quietness and an appropriate address from the President of Federal Executive prior to the commencement of the Contest should place the Contest in its right setting—A Memorial.

The checking of the logs last year disclosed that some contesters were not operating "in the spirit of the Contest."

Surely the greatest joy comes from working with and meeting again as many old friends as possible; from welcoming to our ranks all those whom we have not had the opportunity of meeting before; of giving to our younger generation the feeling of unity that is Amateur Radio; and above all from keeping alive the memory of those whose honour, and of whom we may truly say,

Greater love hath no man than this, that a man lay down his life for his friends.

### ROSS HULL MEMORIAL CONTEST RULES

These have been changed following the discussions which took place at the Federal Convention. The draft has been based on the recommendations of the Amateur Council and on suggestions received per letters from those who have been active v.h.f. participants for many years.

As the 1957-58 period is likely to have conditions which will favour distant contacts of over 1400 miles, your Committee decided to place more emphasis on making awards for meritorious efforts by contestants outside of Australia and its Territories.

Not all the suggestions received were able to be incorporated and the Committee was once again faced with the hard task of making suitable compromises. They follow the standard procedure now adopted.

**PLEASE GIVE THESE RULES A FAIR TRY-OUT FROM ALL DIVISIONS**

Copies of the Rules will be sent overseas in time to make sure of some activity there.

G. M. Bowen, VK2XU, Chairman.

## FEDERAL AWARDS

### W.A.V.E.C.A. AWARD

Latest additions to list are: WFOF, CHAIN, WZEM, CTTF, JAIA, JAIAA, VKAL, and WGIAD. 30 certificates have been issued to date.

G. Weynion, VK2KU, Awards Manager.

## FEDERAL QSL BUREAU

A new world map for Amateurs and S.W.'s adapted to the latest conditions has been issued in the practical size of 30 x 60 cms., coloured in blue, rose and black. The map contains call sign prefix of each country, as well as all zones. It has many other features. It is printed on first class white paper and was produced by Fritz Lüthi, HB9GJ, Kuchler 1, Zurich 4, Switzerland. It retails for 8 Swiss francs plus postage.

A par in the July issue is already out of date. Refer to the information regarding VK2AJ, Cocos Island. During end of May, VK2AJ was suddenly received to the U.K. and left by air and sea. The map contains call sign prefix of each country, as well as all zones. It has many other features. It is printed on first class white paper and was produced by Fritz Lüthi, HB9GJ, Kuchler 1, Zurich 4, Switzerland. It retails for 8 Swiss francs plus postage.

Another new or amended certificate is W.A. D.M. (Worked All DM). It is issued by the Central Board of the Society for Sports and Technics, through the DM Contact Bureau, DM2ABZ, Postbox 181, Schwyz/Mischel, German Democratic Republic. There are 18 DM districts to contact. As the rules are too lengthy to quote here, full details may be obtained from this Bureau or from the Awards Manager, W.I.A.

The Society for Sports and Technics of the German Democratic Republic has arranged a friendship voyage of the sailing-training ship Wilhelm Pieck during the period 1st May to end of August or beginning of September, 1957. During this voyage an Amateur Radio station will be carried with the call sign DM2MM. The operator is DM2ACB. The cruise will be from Grestiswald in the North Sea, through the North Sea, the Atlantic, the Mediterranean to the Black Sea. An award styled the Worked 3 Oceans Award (W3O) will be issued from the DM Contact Bureau, Schwyz/Mischel, German Democratic Republic. Requirements are to contact DM2MM during their passage of at least three of the five oceans. For contact during 4 or 5 oceans, special awards will be issued. Contacts with the vessel while it is in the Straits of Dover, Straits of Gibraltar, the Dardanelles, the Marmora Sea or the Bosporus will be valid for either the ocean just left or the ocean they next reach. For further information contact this Bureau or the Awards Manager, W.I.A.

The Diploma V2B has apparently been revised, but my lack of knowledge of Spanish prevents me from quoting same. Anyone interested may obtain the required info (in Spanish) from this Bureau or the Awards Manager, W.I.A.

During a long contact with Phan 3WRAA, the QSL situation was discussed. Phan states that the Postmaster at Saigon will not handle any letters addressed to him (Phan), but will either destroy or return them. He requests all QSLs be sent via OKFV or the Czech Bureau. Cards from Phan are routed via the same circuit and are coming to hand regularly now.

In a note to BER185, ex-VSBA5 (GIANK) informed Treb that he expected to reach VK3 as of 30th June and plans to stay awhile. The reason for the visit was not stated and it is also not known whether he is still in the R.A.F. or in civvy street.

From January, 1957, Captain Ron Egan, of the Israel Signal Corps, operated as OK1R/Sinal, from Sharm-el-Sheikh, during Israel's occupation of the Sinai Peninsula. He used 1850, 100 to 1000 mc. He contacted 300 stations in the period including a few VKs. A special QSL card was printed for the occasion.

## SILENT KEY

It is with deep regret that we record the passing of:-

VK3JD—Jack Davies.

VK6RT—Len Trunfull.

tion and Capt. Egan requests VK QSLs be sent him care Box 192, Haifa, Israel.

Yet another DX award has come to light. It is issued by the V.Y. Haggen Sendematers. Full information may be had from this Bureau or direct to the W.X.I.L.S. Secretaries DLIMS, Hermann Himmelsbocker, Haggen West, Germany.

Information has just been received from Star Chapman, P2IAZ, ex-WHITE, of Aruba, Netherlands West Indies, and hopes to be on the air frequently and to become as well known and as highly respected in VK as the previous owner of the station.

Ray Jones, VK6RJ, Federal QSL Manager.

## NEW SOUTH WALES

The Annual General Meeting of the N.S.W. Division was held at Science House, Gloucester Street, on Friday, 28th June.

This meeting was preceded by a Special General Meeting to consider the adoption of the new constitution for the N.S.W. Division. After several members among the 53 present had spoken on the legality of the proposed method of voting, the Chairman ruled that no vote would be taken and hopes to be on the air frequently and to become as well known and as highly respected in VK as the previous owner of the station.

The Annual Meeting was then opened and after receiving the President's Report and a short discussion on the Balance Sheet, the nomination for the coming Council was announced. There were Messrs. B. Goddall, IARO, R. Hart, SHO; M. Sobels, ROT; P. Stead, WFOF; B. Ward, JAL; and A. Woodward, 2ZAU. As there were only six nominations for the Council, these members were automatically elected.

The notice of motion regarding the restriction to be placed on disposal of the Divisional property at Dural was discussed at length, several members speaking in favour of it. As it stood would mean that it would be impossible to dispose of the property even if it were in the best interest of the Division to do so. It was decided that the new constitution would require three-fourths majority of the members voting to carry such a motion was carried. The motion was then formally carried as the motion by those present.

During general business, matters of Divisional interest were discussed and a hearty vote of thanks to the retiring President, Jim Corbin, for his work in Institute affairs over the years was moved. After several members spoke highly of the work he had done on members' behalf, the motion was passed with acclamation and the singing of the appropriate chorus.

At the concluding portion of the meeting a statement was made by Jim expressing his thoughts on several matters. The Chairman thanked him for this.

In accordance with the Divisional Constitution, at the first meeting of the new Council, the following office-bearers were elected: President, Jim Corbin, 2ZAU, 1st Vice-President, Bob Goddall, 2ARG, 2nd Vice-President, Roy Hart, SHO; Secretary, J. Woodward, 2ZAU; Treasurer, P. Stead, 2ZAU; Educational, Max Sobels, ROT. The seventh member of Council has not yet been co-opted, nor has the Treasurer been appointed. Until the appointment has been made the retiring Treasurer, V. Cahill, 3VC, has offered to carry on his duties.

At the second meeting of the new Council to review all administrative functions in the Division including the necessity for the appointment of a paid Secretary and the increasing postal correspondence and to provide better service to members.

It is proposed to include a technical article in every new issue bulletin. These articles will be on subjects requested by members. Council would be pleased to have your ideas.

The duties of the new Council members are: Bob Goddall, 2ARG, Public Relations Officer; Roy Hart, SHO, C.D.E.N. Co-ordinator; and Councillor in charge of Dural, Max Sobels, ROT. The chairman of the Council is the retiring Treasurer, V. Cahill, 3VC, has offered to carry on his duties.

## HUNTER BRANCH

The June meeting of the Hunter Branch was held at the University of Technology, Rydges Hill, on the second Friday of the month. A fair gathering of members were present with Lionel KCS as Chairman, Treasurer Bill ZCT and Zone Correspondent Les ZACR were absent at the VK4 Palm Beach Convention.

At the VK4 Convention, with Bill using his mobile rig and Les acting as log keeper, the boys were able to make contact with a score of 18 contacts, and again on the following day when the "Bob Campbell" Memorial Contest with a score of 38 contacts. Bill and Les then all Hunter Branch stations who exchanged reports with them during the contests.

Varley ZSF is very pleased with results from a new mobile using two xtal diodes. ZCN avoiding possible struts in future by getting VL interested and training her as a 2nd op. wise move Rodney. The new harmonic diode has not prevented John ZXCQ from working a bit of DX on 20 mc c.w. Bob ZACR at "Weslie" and Bill ZXL at "Phenyle" Ray are helping to make life happier for a blind Ham ZAXL by keeping regular skeds. "Top" is an ex-Novocastrian and would be pleased to QSO local Hams. NPL and Les ZFP on 12 mc, so hope all will be well with the old boy.

Associate Sid Daniels spent few days at Coffe Harbour and "Do Me" with that friend of all Hams, Crief ZACR. Sid's subject was photography of course (blondes model), but found time for a 40 mc phone/c.w. QSO with JASJ who got his foot key off 14 Mc. Sid really did work to near his home at Maitland, so Bill hopes to use time saved in getting his rig on the air. Postal authorities seem to think JASJ will Ham in Newcastle as all QSL.

cards, etc., not fully addressed go to Ron, IRL. Ron Bishop VKR has returned to G land and leaves his best wishes and thanks to all those in the district who assisted him with gear to get on the air.

On the last Wednesday of the month a meeting was held at Bill ZCT's place of business and the programme for the Blackalls Field Day to be held on October 20 and 21 was discussed. The programme for the benefit of interested members is printed elsewhere in this issue.

## SOUTH WESTERN ZONE

The preliminary meeting on 9th June at Coolamon to arrange this year's Convention, to be held at Coolamon, was very well attended by the following: ZFN, ZACR, ZACZ, ZACM, ZCZC, ZRS, ZJAA, ZPN, ZAJQ, ZASMA, J. Ashley, L. Ashton, O. Clethero, R. Grieves, L. McMahon, L. Abbey, O. Bestard. This was decided to hold the Convention on 26th and 27th October, 1957.

The Griffith gang (10 in all) invited Coolamon to the Saturday afternoon prior to the meeting, and on that evening your scribe had to sit 14 inside the shack; the walls have just started to come back upright again; must be the rain. The rain was again in evidence that evening, but unfortunately was taken III on Sunday and could not attend the meeting. However, Alf and I were the only ones to be transmitting oil from Griffith, Alf.

Have had a couple of visits lately from Lyn ZAQE, who is having a re-build, also going to the States. Eric ZVY also came and with Arnt, Stan, Jack and your scribe a real rag was had. Les ZCZM, from Ballarat, spent the week end of June at Griffith at Coolamon; much gear was re-built and re-hashed, so it looks as if JAO will be on 56 Mc. as soon as a beam is erected. That ZCZM bloke is a real trim-twister. Les was also given the job as Class Instructor on the Tuesday class night at Coolamon. Jack and Stan say their heads are still buzzing.

## COALFIELDS AND LAKEES

Still very little to report from this area. Geoff ZVU from Singleton is active, as well as V.H.I. Geoff is working on a ZVZ. Geoff is telling me in person that he gets on 14 Mc. now and then but does not burn midnight oil. These days, Les ZACR is still active on 7 Mc. phone and talking of 144 Mc. working. ZYL working 7, 14 and 21 Mc. when time permits and hoping to get going mobile before long.

## VICTORIA

The July meeting was held at the usual place, usual time, after one of the coldest days we have had for some years. Needless to say the night was very dry and the attendance suffered accordingly. However, the Radio Theatre was at a very comfortable temperature and the business of the night was not detracted from.

Following the usual preliminaries the lecturer, Squadron-Leader While, was introduced to the meeting by the President. The lecture then proceeded to enlighten us on the intricacies of "Ground Control Apparatus." In brief this is a method used by the R.A.A.F. for talking its pilots down to a safe landing through conditions which would not permit of a normal landing. Quite obviously this is of inestimable value in times of fog and rain and can be used to meet the enemy in almost any weather, and thus eliminate the advantage that the enemy would otherwise have.

As it is to be expected the equipment is very complex and exceedingly expensive, but for all that it is not a scientist's playing, but a very accurate and utilitarian set of equipment. In the services, the equipment is made mobile to enable rapid movement between air bases, and in the case of the R.A.A.F. it can be set up at a strip and be ready for action well within half an hour. The advantages of this are, of course, that the one unit can be moved rapidly from place to place, and in the case of fighter aircraft, which are already crammed with apparatus, is the only practicable system.

As it is to be expected, the system is based on the principle of radar. That is, an extremely short pulse of radio energy is broadcast and the echoes are reflected from objects as presented on a cathode ray tube for

interpretation and appropriate action by a control officer.

In the early stages of development after the last war, it took six operators to handle the equipment, but today the same function is carried out by one man. By virtue of this simplification, it is now possible in the latest equipment for three operators to bring planes into focus in range, direction, and height, and arises to bring planes in two at a time, one on each side of the strip. This is a particularly valuable feature for fighter control.

Following the introductory address on the principles of the equipment, a film showing how the equipment functions and is set up, was shown, and a number of questions were answered in action then followed.

Finally, the lecturer covered the technicalities of the equipment in greater detail, and showed a number of slides.

In principle, all aircraft within a given radius of the airfield are displayed on a P.P.I. (Plan Position Indicator) bulb. The information for this tube is gathered from a continuous rotating aerial which sends out pulses and receives echoes through 360 degrees of travel. The time base on the P.P.I. tube is triggered by the tx pulses, and follows the direction of the antenna and appears on the P.P.I. tube as a series of dots. The range of the antenna on this line as dots and through the persistency of the screen material, these dots appear as continuous spots or areas of light depending on the size of the target. If the object is moving the dots move also and to avoid the confusion which arises when the dots move through a stationary target, the equipment has been designed to eliminate all echoes from fixed objects such as hills, buildings or the like and only show moving objects. To talk an aircraft down from a number in flight it is necessary first to identify the craft from the ground so that the necessary landing instructions may then be given. To do this the ground operator calls a particular aircraft; as soon as this aircraft replies it is automatically d.f.d. and its direction shown on the P.P.I. tube. If the aircraft is moving it is identified the plane on the P.P.I. tube, the operator can then issue homing instructions without further delay.

As the plane approaches the airstrip other more sensitive equipment, which gives very accurate information as to the height of the plane, is brought into play. From this information the pilot is directed to bring his plane along a predetermined glide path which will bring him to a position where a visual landing is possible.

Many thanks are due to Squadron-Leader While for a very interesting night.

The lecturer at the next meeting is to be held at the usual place on 7th August is Graham ZJAA and his subject: "The Construction of a Television Receiver from Disposal Equipment."

New members admitted—Full Members: G. J. Jenkinson, D. Hull; Associates: G. J. McDonald, R. J. Abell, and E. L. Meyer.

We are happy to advise that Phyl Moncur (KYL of ELN) and Betty Culbert are both now in the gold medal class. Phyl has been in the run by Len for a long while, but we were surprised to find it was for gold and not running that the award was made. The joke is that Phyl was always a runner, but he was a gold then radio. Ham golfers please note. Congrats Phyl.

## 30 METRE TRANSMITTER HUNT

The 30 metre tx hunt was held on Sunday, 18th June last, in a highly successful manner. The tx was hidden on this occasion by Len.

## OBITUARY

### JACK DAVIES, VK3JD

It was with great regret that the Victorian Branch of the I.R.U. learned of the death of Jack Davies, VK3JD, at the age of 46 years. He passed away very suddenly from a heart ailment. He will be well remembered by all who have known him. A gang who recognized him as the leading DX phone man in VK, he was the first to make a record on 100 Mc. and 150 Mc.

Jack worked very hard for the Institute during the Madales Exhibitions, taking charge of all low frequency transmissions. With only 100 watts he gave a very interesting interest in Amateur Radio, operating the controls of the remote receivers, Jack made out of the of the outstanding one at the Exhibition.

He made Radio both his work and his hobby and his wide technical knowledge was always ready available to both old-timer and newcomer alike.

The Institute extends sincere sympathy to his wife and three children.

## WIRELESS INSTITUTE OF AUS. HUNTER BRANCH, N.S.W. DIV.

SIXTH ANNUAL  
**FIELD DAY**  
BLACKALLS PARK  
SATURDAY AND SUNDAY,  
5th and 6th OCTOBER, 1957

## ★

### PROGRAMME

Saturday Afternoon, 5th Oct.—  
3.30-4.30 p.m.—Heats of the 144 Mc. Blindfold Tx Hunt.  
4.30-5.30 p.m.—Technical Lecture.  
5.30-6.30 p.m.—Tea.  
6.30-7.30 p.m.—144 Mc. Hidden Tx Hunt.  
7.30-10.30 p.m.—Films.

Sunday, 6th Oct.—  
9.0-11.0 a.m.—144 Mc. Hidden Tx Hunt.  
11.0-1.30 p.m.—Registration and VK2V1 Broadcast.  
1.30 a.m.-12.30 p.m.—7 Mc. Scramble.  
12.30-1.30 p.m.—Lunch.  
1.30-3.0 p.m.—Heats and Final of the 144 Mc. Blindfold Tx Hunt.  
3.0-4.0 p.m.—All-Band Scramble.  
4.0-5.0 p.m.—OMs' Races.  
5.0 p.m.—Prize Giving.

## ★

During Sunday, Races and Competitions will be conducted for the XYLS, YLS and Jnr. op's.  
Speed Boat Trips for junior ops. on Sunday afternoon.  
Prize for the best fish caught on Sunday between 9.0 a.m. and 4.30 p.m.  
Boiling water available free.  
Registration: 12/6 OMs, 2/6 XYLS, Junior ops. free.

SLN and was located near the ford of the Maribyrnong River, a distance of approx. four miles from the G.P.O. Although the signal was weak in at the starting point, Tom 3AOG and Bill 3AGM arrived on the spot within 20 minutes, but another hour and 40 minutes passed before they located the exact spot. The tx was buried in a steel culvert, 15 ft. below the surface, and the ground with a co-ax line going underground to some box thorn bushes with the aerial going away from the poles. However, just as Tom and Maurice started digging, the ground began to settle, who had been wandering around in the vicinity for some time, arrived on the location, simultaneously to see Tom and Maurice dig the tx up.

The next tx hunt will be held on Sunday, 4th August, when the winners, Tom 3AOG and Maurice 3AGM, will be bidding the tx away along and bring the family and friends and a picnic afternoon tea and join in the hunt.

#### EASTERN ZONE CONVENTION

The Eastern Zone Convention, held at Moe, on June 23 and 24, went off very successfully. The dinner, provided by the Methodist Ladies' Guild, was enjoyed by the 38 who sat down for it, including four Melbourne visitors and their wives, and Councillor Gregory. After the enjoyable dinner and the usual tea, the women folk departed to the picture theatre, whilst the OMs got down to business, electing the 1st in SLN 3AAV as President, George 3ZCO, Vice-President, David 3DY, Secretary and Treasurer; Graham 3JZ, Zone Organizer; Cliff 3AIT, Official Zone Station and call up station for the Sunday night. Eastern Zone Hook-up on 80 mc. A lot was discussed in the few hours, such as future activities, C.D.E.N., etc. before the YLs and XYLs returned, and supper put on.

On Sunday morning a 2 and 80 mc hook-up hunt was held. There was no entries for the 80 mc section, but quite a few joined in the 2 mc hunt, which was found by 3ZAT planted in the hills at the back of Hernes Oak with many roads around and to it. Second was the 3ARY and third place went to SLN. After lunch on Friday, Moe, the 2 mc tx hunt was put on for young and old, the visitors without rx's went with the hounds or followed them to the end of the road, the surrounding countryside, as well as joining in the hunt on very hunting, and once again SLN put on a very good show, which we thank him greatly for, and I believe everybody enjoyed themselves. At one stage, Jack 3AJK stopped and asked a farmer who was feeding his cattle outside his house, if he seen a yellow Zephyr, but got no where, as the farmer's only reply was "What! Have I seen your yellow heifer?" George 3ZCO was the winner of the fox hunt.

The Eastern Zone boys decided to hold a fox hunt in Gippsland once again, from now on, this will be held on Sunday afternoons.

After having afternoon tea and inspecting the television aerial assembling line, our Melbourne and Ferntree Gully visitors left for home after a very enjoyable week-end, and looking forward to our next Convention to be held next March at Sale.

#### NORTH EASTERN ZONE CONVENTION

The North Eastern Zone Annual Convention was held on 12th May as an open-air function on the camping area where Lake Nagambie joins the Goulburn River. Unfortunately only a very small proportion of our members were able to turn up, but quite a large number sent apologies. For some it was a little far, while Dick 3AG had to leave after the XYL recovering from severe shock as a result of a motor accident the previous week-end. Associate Jim Harrington had to return home as soon as he had arrived because of illness in his family, and still others again were on duty at their employment that day.

However, 3ASF, 3AGG, 3ALD, 3ZF, 3APF, 3ZC and Associate Bill Kempele were able to attend. State President, Fred 3YS, and former members, Dick 3DG and Doug 3L of Macquarie Island fame, were visitors. Quite a number of XYLs and harmonies made up the party. Bruce 3AGG was re-elected President, Dale 3CO was re-elected Vice-President, and Andy 3YX was re-elected Secretary. Brian 3ASF is now Zone Correspondent, and in compliment to the excellent job he does, Frank 3ZU was re-appointed in his absence to do the regular 3ZU broadcasts if he can see fit to continue in that capacity.

Zone hook-up time has been changed to 3.7 Mc. on Wednesday 2000 hours. This time was chosen for the recent Zone Convention to try and stimulate some interest in the Zone, but as the Convention was rather poorly attended, it is not known whether this time will be suitable to most members of this zone.

It has not been possible to collect much news of the members and associates for obvious reasons, but included are some items of news concerning the members near Shepparton. Ray 3PT and Neil 3ALL have been receiving cards from Burgess for DX cards, which they personally have not had, but apparently cards have been working their calls on the bands. Ken 3EB has been using a 400 watt transmitter on 20 mc. Bryan 3ASF has been devoting his time to things other than Amateur Radio, in effect he has recently become engaged. Les 3ALF contemplating the purchase of a new car, gear John 3ACD adding to his residence—interesting aspect.

For communication from Wangaratta and Renalla areas, so how about dropping us a note chaps on your activities until such time as we can talk to you on the new hook-up time and learn something about the things over your way? Murray 3HZ very busy with the new m.f. station, where, by the way, is situated a very nice high beam tower. Peter 3IAPP sent about town often; his interest, along with Ted 3AOB and Syd 3CI, seems to be centred on tv activities. George 3GD heard news of a hook-up on 10, 15 and 20 mc by Bruce 3AGG who has been busy modifying his quad, appears to be working well by reports received. Well chaps, let's have some news, also not forgetting our associate members 3ASF.

#### SOUTH WESTERN ZONE

The Geelong Radio Club held its annual meeting this month and the main officers were re-elected as follows: Jim 3AGT, President; Eric Clarke, Treasurer; Keith Vines, Secretary. The ladies' night was quite a success. Noel 3JAS gave away a nice annotated set of convention shola. Bill 3BU showed some colour film and Jim 3ABT showed slides of general interest. The retiring President, Bill 3AWZ, thanked all for their co-operation during the year. An interesting new syllabus has been drawn up and these will be posted to members soon.

There has been no sight of Mart 3AKU of Colac, since the Convention; we hope all is well. Kevin 3AKH has no time to chase DX (although working some Ws), he is tied up with t.v. preselectors. John 3AGD is using his "Fantastic results" on t.v. preselectors. 3IS with 3JG is going in for long yagis with Neil 3JIS and doing some DX. Jack 3JA is doing well on 11 Mc. DX and John 3ARJ has troubles—the tx will up.

The Secretary for the Zone hopes soon to have some minutes available to all members from the Geelong Convention.

#### WESTERN ZONE

Merv 3APD, of Horsham, is at present assembling a stacked beam array on a 40 ft. tower, so when this is completed Merv expects better signal reports on the higher frequencies. Herb 3AJJ has recently moved to a new residence and having the a.c. power will soon be on the air. His tx consists of Geleco or rital, switched to either 907 or 813 for 3.5 to 22 Mc work. V.h.f. rig is VT301, VT301, 2 x 2X88 for 50-296 Mc. Modulation full clamp on h.f. with a.m. or f.m. on v.h.f. Ret. modified RA1B with double conversion covering 590 Kc. to 40 Mc.

Herb is also a keen television enthusiast and has obtained some very good results. Sometimes when conditions are good the reception is as good as it is in Melbourne, however at other times the signal fades and at times is a washout. Antennae in use are yagis, series 44 and 296 Mc., also a blunder for 296 Mc.; on the lower bands at present using XYL's clothes line which is cut for 14 Mc., centre fed.

#### SHIRAZ AREA

This month's notes start with a timely reminder to all interested that the zone hook-up takes place at 7.30 p.m. on the second and fourth Mondays of each month, freq. 3.7 Mc. Unfortunately most members were conspicuous by their absence during the first two hook-ups in June, some being heard working DX on 20 and on 40 mc.

It was pleasing to hear of the interest shown by Rt. Arnold members and Neville 3ACM is arranging to gather them into the fold. Jim 3GV thinks that t.v. malaise has claimed a few victims through t.v. or t.v. (t.v. viewing) in which case a lot of sympathy will go out from the Bendigo gang where t.v. looks like becoming a problem to a very short time.

To follow in Dale Carnegie's footsteps, Neville 3ACM is busy working on an all-band t.v.i. proofed a.m. s.s.b. rig with a heterodyne unit and all heterodyne units. This may turn out to be the little black box the a.c. gang has waited for, but even if it isn't, it still provides a lot of enjoyment and will stop the receipt of QSL cards from t.v. viewers.

Speaking of enjoyment—in large quantities, mainly liquid—Bill 3AGM, who has been semi-resident in Bendigo for some time, was furlwelled on Friday, 8th July, prior to leaving for Colac, which is nearly as far as Bendigo from these mighty towers and carpet of wires in Ballarat. Cheers William, and thanks from all for your assistance in the past, particularly in the erection of that mast at 3PF's QTH.

Now that 3FY has his new mast holding a CGU beam in addition to the help through the able assistance of 3ACN, 3AMH and other friends in need, he can recommend the extra 40 ft. for its DX-getting ability. If any one would like information on how not to erect a mast, a stamped self-addressed envelope to 3ACN or 3FY will bring a 30 page reply based on very bad experience acquired the hard way.

Rex 3UR has just returned from holidays in Adelaide. In addition to finding out how VK5s live he probably enjoyed himself. Peter 3APJ is playing with Rothman modulation, but whether success or failure has attended his efforts, we don't know. But it's good to have someone around who has tried these ideas and knows the answers.



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## QUEENSLAND

Since the last general meeting in May the Queensland Division has called through a very busy programme. Speaking as a participant and observer, I know that everyone who travelled to our Annual Convention at Palm to pass on really had a pleasant experience. Inverting to last month's Council meeting, which was held on 13/6/71, final arrangements were made and all the loose ends were tied up for the Palm Beach Convention which followed on the 15th, 16th and 17th June.

On behalf of Council and all the fellows who enjoyed themselves at the Convention, I would like to pass on really a lot of thanks for a top job of organising by Aussie 67N.

At the Council meeting, John 40J presented his resignation as Federal Councillor. Unfortunately, his transfer to another State "come off the ice" and concluded a pleasant association with many VKA boys. Too bad we had to lose you, Paul, but all the best in your new QTH. The Council members appreciated your companionship as well as the services you willingly rendered to this Division. Well that leaves a vacancy as Treasurer. As a majority of Council members already serve on one or more other W.I.A. committees, it would be truly appreciated if some city Ham would like to transfer to the Division in an official capacity, has generously stepped into his old position. What about it boys?

At the same time we would like to wish Charlie as the Treasurer. His experience now that he has climbed out of harness. He, too, has put endless years as Treasurer into the W.I.A. and I know that Council is sincerely grateful to him for his services as well done. Fortunately, Jim 40B has signified his willingness to fill this position and we all wish you every success in your new role.

After the Council meeting Councillors were invited to remain for the Emergency Committee meeting. Vince 4VJ was in the chair, and after considerable discussion, many problems were discussed. In the end, the Committee decided quite wisely I thought, formulated a plan to be presented in three separate stages. The meeting was delayed, but it does embody the vast problems of Civil Defence.

The boys concerned closely examined the results of the Convention competitions and it was noted with interest, after considering the detailed report by the Committee, that the Hdg. Station, by all the 14 H.F./V.H.F. mobiles operating and by the numerous personal receivers, the so-called W.I.A. Plan, was a success. Emergency Plan was an unqualified success. It was also noted that general operating procedure would have to be modified and the functions of the emergency committee have to be maintained. It is hoped at a later date to present to a general meeting a tape recording of 51 emergency trials in action. All operating on the SAME frequency. I have been told that the operating procedure is some of the best ever heard. Keep it in mind, boys, it should be very interesting as well as instructive.

The only way that we can find a practical plan for Civil Defence is by supposition and argument and subsequently a practical meeting in June, the boys in three different groups, under the guidance of Evan 4EP and John 4FP, tried to resolve the pattern of such a plan. In the end, the Committee, in stage 2, has decided that these discussions, of which there is to be another, puts the maintenance of the plan into the hands of just what the picture is about.

Stage 3 will then be the first trial run amongst ourselves. A simulated emergency, requiring H.F. and V.H.F. mobiles, low power and high power stations, a central hub, two relay stations working into a central hub (which in this case will be 4WI) should then reveal any possible weak links that we may have overlooked.

The Emergency Committee has put a great deal of thought and effort into the preparation and presentation of the Amateur C.I.D. Plan. It is hoped that the Committee, encouraged in undertaking such a task, we, the ordinary Amateur, can do this by just making that vital cry possible, extending our cooperation wherever possible.

Our general meeting on 5/7/71 was one of the liveliest we've had for many a long day and it was high on the agenda. A circulation rumour has stimulated some members to object to the possibility of W.I.A. disposals gear quickly reaching the hands of the enemy. Particularly when the gear went to ballot. Long discussion finally resolved the matter to the statement: "The successful bidder, who has the right to buy, can sell his gear only to another member, and any member who does otherwise,

without the consent of Council, will not be allowed to ballot for future disposals equipment." It is only fair, as there are always many more unsuccessful members in these ballots than successful ones. After the air had cleared, the ballot for 20 Lm. transceivers took place. Winners' names have been sent over 4WI and will appear in "QTC". Five extra names were recorded of the hat should any of the successful members not claim their gear. Members are requested to pay and reception. Failure to do this will lose you the gear which will go to the successful Hams whose names were drawn at the ballot.

A lecture on mobile gear is to be given at the next general meeting. Several Hams will present their views on the subject of mobile gear and its operation. Same. Should be quite an interesting evening.

Well it certainly pays to advertise! We had over 70 Hams and friends at the June Convention and a varied programme kept them all busy! Hams from Sydney, Newcastle, Coffs Harbour, Brisbane, Galtion, Gympie and Townsville rubbed shoulders for three days at the National Pioneer Camp. The boys chomped and chomped on Saturday morning, until most of the travellers had arrived at the camp. The boys, less officially opened the long list of activities.

On Saturday morning the camp rig, operated by Aussie 47H and our President, Frank 42M, was used for the first time. The rig was made for re-broadcast purposes over 4WI. The 7 Mc. scramble was won by John 4FP with 23 contacts. John also captured the first prize in the Hidden Tx Hunt. On the 7th morning, located the tx 7 miles away in 13 minutes. The Bob Campbell Memorial Contest was won by Bill 4XT with 49 contacts. Bill also occupied the podium in the All-Band Scramble with 19 contacts.

One of our 2 mc experts, Jack 4JO, romped home in the first 3 mc Hidden Tx Hunt, having found the tx across the river, near Currumbin in 12 minutes. Jack, after many Blindfold Tx Hunts were run off, emerged as the winner in the 1800 Blindfold Congress, Jack on becoming the 1807 Blindfold Congress.

On the Saturday night we had a very pleasant barbecue supplemented by a keg of that amber stuff. It was held at Morrie's home and another informal, our cook, officiated. We had a cornucopia of food, and the boys were fed by the banks of the river. Thanks once again, Morrie, those steaks were delicious. Earlier in the fine time, a prize was put on by Harry Peel and the presentation of prizes to contest winners. We were paid a visit by two gentlemen from the R. Dept., Messrs. P. Andrews and Monahan, and it affords quite a nice feeling to know that they were visiting us socially rather than officially.

The latest news on our disposals tubes is that we have them and they are on their way up from Sydney. They are 6V6Gs and 6X60Ts, instructions on price, etc., have yet to be issued. "QTC" will contain all the necessary information as it comes to hand.

## TOWNSVILLE

The last usual monthly meeting took place at the residence of the club's president. One of the fellows turned up together with a few prospective Amateurs. Our Secretary, who has returned from his recent visit to the capital city, gave a resume of his doings there also a report on the monthly meetings of the W.I.A. he attended whilst there. Rex 4LR, who has been the Hams' Club's future before last long week-end, came back quite thrilled with it all, especially the hidden tx hunts and the quietude of the place to be held here; his report was well received.

After the usual minutes being read and disposed of, quite a lengthy discussion took place on spending of the club funds. It was realised that the club had been in a financial straits for some time. It was decided that with such a large membership, has just accomplished some after many working bees to get the job finished. After a lot of cross-talking, the matter was decided that the club allowed each in turn to give his views, so that everybody was quite clear in his own mind just what he intended. The matter was then resolved that again the matter be left till next meeting, when a vote will be taken re the funds in hand. Main points being raised were: whether to purchase a new car or purchase technical books for a library and who would hold and be responsible for same. Ted 4LH, who has been the Hams' Club's future, was glad to hear he has built a doover to plug in frt. r.f. valve socket and boost all signals

to 5S plus so will in future enjoy a QSO! Pressure of work stopped Allan 4FS, just back from a business trip to Sydney, from attending the last meeting. Don 4PW in Collinsville has managed to work a lot of QSO's on 7 Mc. and hopes to have Jim 4QD re-building shortly. John 4DK heard on 2.5 Mc. with Vern 4LK. Borry boys power line 4QZ prevents me working on 15 Mc. took up holiday; try night time. Hal 4HF in daily communication with Macquarie Island. Andy 4HW hobs up unexpectedly all signals. The boys in the 4000 Mc. band (invalists) heard in skeds at night time with the boys in Cairns.

The gang in the Townsville area quite jubilant with the W.I.A. news that the following were successful in the ballot for the transceivers: John 4DK, Ted 4JF, Rex 4LR, with 23 contacts. The 7 Mc. scramble was won by anticipated that 144 Mc. will get quite a lift when these transceivers are modified and pumped out signals. Also congratulations to Vern on his 144 Mc. sale in June A.H.

## MARYBOROUGH

4AI is busy building a new shack under his house. A beam antenna is being rotated from the shack. 4DJ is re-building again. This time it's the Mark 3 model based on a Geloso. Much work has been done including an enclosed rack and panel job. Graham 4HJ has a 3-tube converter for 15 mc and has been heard on that band.

4AI has heard some Africans on 10 mc on his 5038 is thinking of returning to his old 10 mc stamping ground. 4BG still plugging away on 20 and 12 mc. phasing and c.w. At Gympie, 4HZ is improving the landscape by putting up a steel tower.

## SOUTH AUSTRALIA

Our new programme committee, Lloyd 50K, Bob 4PU, Jack 4Wits, Des 4Kly, Neil 52AW, and Bob 4Wits, have been working hard to get together, being a film night showing a very good film on Arnhem Land. The film was in excellent colour and was projected professionally from two projectors. The boys obtained synchronisation after the first try. The programme was well received by the boys and they were very interested in what Lloyd and Jack, who did the work, were suitably thanked for their splendid effort.

Amongst the many visitors present, 4VW was from the north district. He enjoyed our evening with the boys OM, came very good for us like to see our "air friends" when possible. It could also be said we had a lot of visitors from the south. The boys in the Hugsie 5BC, who was holidaying in Adelaide at that time and dropped in to see the boys. Hugsie being a V.H.F. type, will reserve report from him for a while.

Some new members were accepted, two full members being A. L. Umbarger, 5UM, and J. B. Hawke, 5BH, with associates P. L. Woodlands, 5Daw, and L. J. Ernst. Welcome fellows, boys you enjoy your membership. A transfer to us from ex-4EW, E. H. White, who has been a member of the club for some time, also adds to our membership. Do you intend working 5S Mc? The boys will be waiting on you if you do.

One of the most important, one item of correspondence cleared the "Mail" for Brian 5CA, he has been singularly lucky recent months in that he has been able to work a lot of QSO's (as dressed to him) have been of such a nature that the Treasurer has to handle them.

Gordon 4AC concluded the evening by giving us a run through on matters relating to the club and the boys who have further information for those who want to go more fully into the matter.

At 10.15 P.M. the continuous c.w. signal will be listened for and due to the doppler effect will require a receiver band width of 8 Kc. The station will be visible for 3 seconds only each time past, the visibility will be mainly confined to early morning and late evening.

The 50 Mc. GAZU beams are functioning over this way, including Jack 5LR and 5JO, in fact Joe was carrying a list of 51 Mc. contacts. The station was put in the air while. By the time you read this, Les 5AX will have his up and working stop his new 40 ft. tower and no doubt will have worked a lot of QSO's. The boys in the 4000 Mc. band (invalists) heard in skeds at night time with the boys in Cairns.

Our next picnic has been fixed for the January 2nd. The boys in the 4000 Mc. band (invalists) heard in skeds at night time with the boys in Cairns.

There have been a few enquiries of late for slow morse transmissions and it is now learned that in addition to TON TFL on 3304 Kc 7 p.m. Thursdays, Doc SMD will be on the same frequency from 9 to 10 p.m. each Sunday. If you make use of these transmissions let them know, drop them a line or phone, for if no comments are received they are apt to think it's not there and could be excused for dropping it off. It's up to you to help keeping it going by this means.

Have you heard the VKs calling CQ on 19 mX quite a few times lately, so you 19 mX boys should make some interesting contacts there. It's worth watching.

Talking of interest, now polish up the gear or operating procedures for R.D. Contest this month, give the present holders a run for their money or even better, you can get that trophy back this way—long time no see.

Sacrilege, that's the word, yes sir! Had a contact with John SJW last week, 19 mX, stepped down from 19 mX, long enough. It matter locally, nice to hear you John. Des SDK also was heard on the same band and getting out well. John's antenna was described by Des as needing a set of sails only to complete the illusion of a windmillman in the Wilson backyard.

Lance SXJ, late having a problem on a modular trouble lately and discovered that it (the mod.) works better on its side. OK Lance, do like Doc SMD did and build it on its side anyway. I think it's a good idea to try it out the way all the time. Burnie, SWS's main op. advises us it's warm up there whilst we freeze down here. Good luck to you, Burnie, and steamed up for R.D. Burnie, good luck to you.

Col. BRO has broken the ice again lately, and has appeared on 80 mX, that's a slow down from mX Col. and it sounded good. Chas. PCV (Warrington) Chas. has been doing great things with a new pre-selector and now works more than ever. Keith SKH has at last met Chas. SGN mainly I think as a result of Chas. wandering nearer him.

Dave BIF has a much improved signal as a result of pre-amp, re-build. VHF really sits the ether each Sunday with a 5 x 8'er, Bob BEB has made a return to 40 mX after a long spell too, his very fine signal indicates no loss of technique as a result of the dry.

The latest Gray Beard is Claude SGN, grab him 'Gambler' gear, it's worth something sure to be a real satisfaction to the boys who know him. Col. SCJ has hooked up his new shack some more and now has line to drop the solder on. Tom STW is rushing two new poles and good ready to go. John SJW whilst Krg SKU keeps 20 mX going very actively with Stuart SMS very silent, warm it up now you can hear him. The one-eyed misanthrope continues to engage John SJW. Congrats Bram SAB, a new daughter no less, who with a new 12'er, 20 and 15 mX makes two new babies, good luck to him.

Quite a lot of interest is being shown amongst the boys on double sideband reduced carrier, so don't be surprised if you hear a funny sounding signal the next soon. The arguments that are going on between the two ideas of s.a.b. and d.a.b. indicate more interest in this than a job and a half. It's been going a long time, and at least will promote some hasty re-builds. Added to this "CQ" has come to light with a really smart idea to receive it, so that it can be held back in the air, by way, whichever way you may argue on its merit, if d.a.b. is generated at low level and linear, it's better than s.a.b. and if it needs a sideband filter later on and the whole argument can be proved.

## WESTERN AUSTRALIA

We are very sorry to report this month the loss of a valued member, Mr. Duff. He will be missed by his many friends. The Division has lost a valued member, and we all extend our sympathy to Mrs. Trunfull.

### OBITUARY

#### LEN TRUNFULL, VK6RT

VK6s will regret the passing of Len Trunfull, VK6RT, an Amateur of many years standing. He was buried in Karrakatta cemetery on 11. The W.A. V.A. Division, extends its sincere sympathy to his widow, Enid, in her loss. VK6RT was a well known and liked person, friendly always, anxious to help others, and grateful for any suggestions.

VK6RW made the announcement on the News sample of days after his death and maintained one minute's silence on an unannounced carrier.

The regional meeting for June was held on 18th and 6HR gave a very interesting talk and demonstration on Toyatron Control of Motors. During the month local activity was apparent on 40 mX and most days had notice of several, and 80 mX showed increasing activity, several new calls and some old ones rarely heard on the L.F. I had a 20 mX contact.

John, whose voice is familiar from the club station at Pierce (6AF) is putting out the dog sig on 80 mX with his new call 6JM. SMO is very active with a cheap station out of that way, is on 40 mX c.c. with low power on L.F. end. Another surprise on 40 was 6CN. Judging by Cyril's sign he should really go to town, where his new rig is completed. 6EJ was on c.w. 87R is putting in a very good sig from his new QTH in Vic. Park. 6BE is busy getting 40 mX, 50 mX, 70 mX, 80 mX, 90 mX, 100 mX, 110 mX, 120 mX, 130 mX, 140 mX, 150 mX, 160 mX, 170 mX, 180 mX, 190 mX, 200 mX, 210 mX, 220 mX, 230 mX, 240 mX, 250 mX, 260 mX, 270 mX, 280 mX, 290 mX, 300 mX, 310 mX, 320 mX, 330 mX, 340 mX, 350 mX, 360 mX, 370 mX, 380 mX, 390 mX, 400 mX, 410 mX, 420 mX, 430 mX, 440 mX, 450 mX, 460 mX, 470 mX, 480 mX, 490 mX, 500 mX, 510 mX, 520 mX, 530 mX, 540 mX, 550 mX, 560 mX, 570 mX, 580 mX, 590 mX, 600 mX, 610 mX, 620 mX, 630 mX, 640 mX, 650 mX, 660 mX, 670 mX, 680 mX, 690 mX, 700 mX, 710 mX, 720 mX, 730 mX, 740 mX, 750 mX, 760 mX, 770 mX, 780 mX, 790 mX, 800 mX, 810 mX, 820 mX, 830 mX, 840 mX, 850 mX, 860 mX, 870 mX, 880 mX, 890 mX, 900 mX, 910 mX, 920 mX, 930 mX, 940 mX, 950 mX, 960 mX, 970 mX, 980 mX, 990 mX, 1000 mX.

To his early associates still on deck. Wally sends his greetings to medium of S.A.R.

## TASMANIA

Ah, the unaccountable irreverences cast by the Northerners upon these countable grey hairs. Still—

Wot books it that the voltage lingers on, conversing in the character of a lightning bolt. Wot sort of bloke will never take the chance And hope it's gone?

He's the bloke wet has already give two hoets, And wopped his paw out hol' 'n' tingling— He's cautious, he's been found the very thing Wot books it.

At the July meeting another good lecture, this time from Joe TB, who modestly dubbed it "Bis and Fines", dealing with the intriguing possibilities of double sideband suppressed carrier. You know, stereophonic static. And it's heard that one or two of Joe's hints and kinks on rx technique have been tried already, with happy results. Rumour has it, too, that he has been furiously trying ELKs in the FROG.

Len TLE plans a telling blow for 144 Mc. with a fox hunt scheduled for the evening of 20th. This is a most interesting proposition, so because those who grill their batteries can console themselves with the prospect of grilling some chops and things afterwards on the TLE.

The Sunday morning round-up gets more and more of them out of bed by 10 a.m. despite the temperature sitting on 100. TB, TBN, TBT, TCA, TCT, TJO, TKA, TKE, TLE, TLS, TLT, TOM, TPF, TRM, TRX, TRY, TSM, TTY. For some reason connected with a counter-industrial strike, there has been no contact from the northwest around to the south on most occasions. Now it is to go the other way for a while, but we have a very nice poor old TCT from his customary spot on the end of the queue.

TRM TLE are to be heard on their patient job of QSL-section. It's believed that OCT in the municipality of Esperance proposes trying his luck some Sunday, while the northern unit appears to be waiting for a sign. Expect to resume his better-known call T/B for good in October.

A thought for the R.D. Contest: It's all right to get excited about the rules and one thing and another. But if we can't win it, there is precedent enough in these few comments to suggest that it's a day . . . to lose it as actively as possible.

### NORTH WESTERN ZONE

I trust that by now you will have all given a true and faithful record of your income for the year. As far as I know it is not permissible to claim capital cost on that new rig!

And how's about all those little old sunspots—looks as though old Sol must have measles or perhaps chicken pox—ask Dennis TDR about that. Although I say it, I don't know about the chicken pox, I mean, I haven't seen any of these Roerlin's Australians in spite of persistent reports, but I hope those active boys with 7 call multi-use of them to bounce a u.h.f. wave over vast distances.

One of our latest additions to the North West, is a young fellow, a VK, who was called the VKY, but has now been operating as TKC for a month or two now. I've told there is room for a buffet and lounge chair in lounge, or should be the rig, too.

We have another very keen type transferred into our area, Pat TPM from Kelson. He has been working in Kelson to work over U.I.R. Radio Link. Pat seems concerned about the fact that he cannot bring his rhombic with him, unfortunately it covers about an acre of ground. Pat had received some QSL cards last time I was there—all DX, of course. Incidentally, Pat had news of Reg TWN, who at present is recuperating at Beaconsfield. Best regards to you and yours Reg.

The really big item for July was the zone meeting held at Roy TRM's and it appears that everything in Kelson was colossal. The numbers present, the amazing amount of junk sold for phenomenal prices, and the supper provided by Joyce, Terry XL, Barry I, and Pat, not make it, I say. But I was told by Sid TR that he couldn't eat another mouthful.

No, 11 sets are in the news again. One of the most important assistance must accompany be precise. Owned by Myles MacGinnia, who boasts a 2nd Class Commercial, so we should have a sign from the cable received there soon. Another member, too, do you think?

## HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 10th of the month. Minimum assistance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers advertisements not accepted in this column.

**FOR SALE:** BC348 R 14 tx. Dble. Conv. XII. cont. 915-175 Kc. Tx-Geloso v.f.o. with Z28, pi-sect, anal 813 and fil. tan. Rod-A & R. v.f.o. mod. components, brand new drilled chassis & cabinet, mic, etc. Pwr. supplies, meters, parts, antenna, etc. The lot £70 or offer parts. J. Battrick, Bayview Rd., Frankston, Vic. (Tel. 278D)

**SELL:** Pair "Reyo" multiband dipole coils (see "QST" Mar. '55). Labgear Wideband Multiplier, switched 80 thru 10, new, with pair 12BH7 tubes. Johnson Viking SWR Bridge (new). Pair 4-125A tubes, one new, other used few hours, with sockets. One 4-65A tube, new, w/socket. Tx-exciter for 20, 15, 10, uses 3 x 6AM6, one 5763, one 6146 or Z28, complete with tubes; has v.f.o. w/Edystone I.v. dial, calibrated; in black metal case, wired w/shielded hook up and ceramic disc by-passed; a gift for less than cost of parts. Kit parts for Edmonds Xtal s.a.b. filter exciter, includes 13 x FT241A xtls. (455 Kc. carrier), U & L s.b. reject, with xformers, ceramic switches and slug tuned formers for converter stage; all new and first quality; anyone want them? Write for further details. J. K. Herd, P.O. Box 73, Wangaratta, Vic.

**SELL:** Type 3 Mk. II, Heising scr. mod. xtal mike, xtal, splkr. Good condition. £40. P. Davies, 31 Jackson St., Toorak, Vic. (LA 8899).

**WANTED:** 144 Mc. gear, components, Harry Dobbey, 42 Walnut Ave., Mil-dura, Vic.

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*This receiver makes amateur history...*



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*The*

**EDDYSTONE**

**MODEL**

**'888'**

**Amateur Band Communications Receiver**

**FULL BAND SPREAD ON THE SIX MAJOR AMATEUR BANDS**

By including only the six commonly-used Amateur bands the EDDYSTONE "888" offers big advantages. The expanded tuning scale gives a remarkable bandspread, enabling a frequency to be read to very fine limits. Also the L/C ratio for each tuned circuit can be chosen for maximum performance.

**BANDSPREAD.** The essentials of good bandspread are firstly a long scale and secondly a good drive mechanism. The "888" offers a scale 12" long and a geared drive mechanism having a reduction ratio of 40:1. With the vernier scale the mean average readings are:

Range	Freq. Limits (Kc/s.)	Kc/s. per division
1.	28,000 — 30,000	2.0
2.	21,000 — 21,500	0.7
3.	14,000 — 14,350	0.5
4.	7,000 — 7,300	0.33
5.	3,500 — 4,000	0.7
6.	1,800 — 2,000	0.25

**FREQUENCY STABILITY.** Excellent overall frequency stability is given by the oscillator circuit design. Negative temperature co-efficient condensers counteract long-term drift.

**BUILT-IN CRYSTAL CALIBRATOR.** The crystal calibrator provides marker points every 100 Kc/s. Positive corrections due to any slight circuit variation are easily made by the use of this calibrator and trimmer condenser.

**AUDIO FILTER.** Incorporated in the "888" is an audio filter, peaking at 1,000 cycles and having a bandwidth of 100 cycles for c.w. reception.

**MONITORING.** With Stand-by Switch "off", the receiver is de-sensitised but not fully muted, enabling c.w. and telephony monitoring of local transmission. Stand-by sensitivity is adjustable.

**ELECTRICAL PERFORMANCE.** Sensitivity throughout is better than 3 microvolts for a 20 db. signal-to-noise ratio (50 milliwatts output, 30% modulation); absolute sensitivity on c.w. is better than 0.5 microvolts.

Selectivity is variable from 30 db. to 80 db. down, 5 Kc/s. off resonance. With audio filter in circuit, a signal 250 cycles off resonance is attenuated 32 db.

Output power exceeds 2.5 watts into a 2.5 ohm load. Image ratio better than 35 db. at 30 Mc/s. and higher on other bands.

**AERIAL INPUT.** Input impedance, approximately 75 ohms balanced or unbalanced. An aerial trimmer permits optimum results.

**OUTPUT CIRCUITS.** Terminals at the rear take a speaker with impedance of 25 ohms; a panel jack is provided for high resistance headphones.

**OTHER FEATURES.** A rear socket takes the plug of Eddystone Cat. No. 609 "S" Meter; another permits use of vibrator power pack.

**EDDYSTONE "888" Receivers** are obtainable from all Eddystone Distributors. All radio receivers are subject to severe import restrictions and supply is dependent upon import licence availability.

**A FULLY DESCRIPTIVE BOOKLET AVAILABLE UPON REQUEST.**

Amateur Price: £261/2/- (including Sales Tax £41/-/3)

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